BOTTOM MESONS
($B = \pm 1$)

$B^+ = u\overline{b}$, $B^0 = d\overline{b}$, $\overline{B}^0 = \overline{d}\,b$, $B^- = \overline{u}\,b$, similarly for B^*'s

B-particle organization

Many measurements of B decays involve admixtures of B hadrons. Previously we arbitrarily included such admixtures in the $B^\pm$ section, but because of their importance we have created two new sections: "$B^\pm/B^0$ Admixture" for $\Upsilon(4S)$ results and "$B^\pm/B^0/B_s^0/b$-baryon Admixture" for results at higher energies. Most inclusive decay branching fractions and χ_b at high energy are found in the Admixture sections. B^0-$\overline{B}^0$ mixing data are found in the B^0 section, while B_s^0-$\overline{B}_s^0$ mixing data and B-$\overline{B}$ mixing data for a B^0/B_s^0 admixture are found in the B_s^0 section. CP-violation data are found in the $B^\pm$, B^0, and $B^\pm B^0$ Admixture sections. b-baryons are found near the end of the Baryon section.

The organization of the B sections is now as follows, where bullets indicate particle sections and brackets indicate reviews.

- $B^\pm$

    mass, mean life, CP violation, branching fractions

- B^0

    mass, mean life, B^0-$\overline{B}^0$ mixing, CP violation,

    branching fractions

- $B^\pm/B^0$ Admixtures

    CP violation, branching fractions

- $B^\pm/B^0/B_s^0/b$-baryon Admixtures

    mean life, production fractions, branching fractions

- B^*, $B_1(5721)$, $B_2^*(5747)$, $B_J(5970)$

    mass, width

- B_s^0

    mass, mean life, B_s^0-$\overline{B}_s^0$ mixing, CP violation,

    branching fractions

- B_s^*, $B_{s1}(5830)^0$, $B_{s2}^*(5840)^0$

    mass, width

- $B_c^{\pm}$

    mass, mean life, branching fractions

- $B_c(2S)^{\pm}$

    mass

At the end of Baryon Listings:

- Λ_b

    mass, mean life, branching fractions

- $\Lambda_b(5912)^0$, $\Lambda_b(5920)^0$, $\Lambda_b(6070)^0$, $\Lambda_b(6146)^0$, $\Lambda_b(6152)^0$

    mass, width

- Σ_b

    mass

- Σ_b^*, $\Sigma_b(6097)^+$, $\Sigma_b(6097)^-$

    mass, width

- Ξ_b^0, Ξ_b^-

    mass, mean life, branching fractions

- $\Xi_b'(5935)^-$, $\Xi_b(5945)^0$, $\Xi_b(5955)^-$, $\Xi_b(6100)^-$, $\Xi_b(6227)^-$, $\Xi_b(6227)^0$, $\Xi_b(6327)^0$, $\Xi_b(6333)^0$

    mass, width

- Ω_b^-

    mass, mean life, branching fractions

- $\Omega_b(6316)^-$, $\Omega_b(6330)^-$, $\Omega_b(6340)^-$, $\Omega_b(6350)^-$

    mass

- *b*-baryon Admixture

    mean life, branching fractions

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

I, *J*, *P* need confirmation. Quantum numbers shown are quark-model predictions.

Mass $m_{B^{\pm}} = 5279.41 \pm 0.07$ MeV
Mean life $\tau_{B^{\pm}} = (1.638 \pm 0.004) \times 10^{-12}$ s
　　$c\tau = 491.1$ μm

CP violation

$A_{CP}(B^+ \to J/\psi(1S)K^+) = (1.8 \pm 3.0) \times 10^{-3}$ 　(S = 1.5)
$A_{CP}(B^+ \to J/\psi(1S)\pi^+) = (1.8 \pm 1.2) \times 10^{-2}$ 　(S = 1.3)

$A_{CP}(B^+ \to J/\psi \rho^+) = -0.05 \pm 0.05$

$A_{CP}(B^+ \to J/\psi K^*(892)^+) = -0.048 \pm 0.033$

$A_{CP}(B^+ \to \eta_c K^+) = 0.01 \pm 0.07 \quad (S = 2.2)$

$A_{CP}(B^+ \to \psi(2S)\pi^+) = 0.03 \pm 0.06$

$A_{CP}(B^+ \to \psi(2S)K^+) = 0.012 \pm 0.020 \quad (S = 1.5)$

$A_{CP}(B^+ \to \psi(2S)K^*(892)^+) = 0.08 \pm 0.21$

$A_{CP}(B^+ \to \chi_{c1}(1P)\pi^+) = 0.07 \pm 0.18$

$A_{CP}(B^+ \to \chi_{c0}K^+) = -0.20 \pm 0.18 \quad (S = 1.5)$

$A_{CP}(B^+ \to \chi_{c1}K^+) = -0.009 \pm 0.033$

$A_{CP}(B^+ \to \chi_{c1}K^*(892)^+) = 0.5 \pm 0.5$

$A_{CP}(B^+ \to D^0 \ell^+ \nu_\ell) = (-0.14 \pm 0.20) \times 10^{-2}$

$A_{CP}(B^+ \to \overline{D}^0 \pi^+) = (-3 \pm 5) \times 10^{-3}$

$A_{CP}(B^+ \to D_{CP(+1)}\pi^+) = -0.0080 \pm 0.0024$

$A_{CP}(B^+ \to D_{CP(-1)}\pi^+) = 0.017 \pm 0.026$

$A_{CP}([K^\mp \pi^\pm \pi^+ \pi^-]_D \pi^+) = 0.070 \pm 0.020$

$A_{CP}(B^+ \to [\pi^+ \pi^+ \pi^- \pi^-]_D K^+) = 0.061 \pm 0.013$

$A_{CP}(B^+ \to [\pi^+ \pi^- \pi^+ \pi^-]_D K^*(892)^+) = 0.02 \pm 0.11$

$A_{CP}(B^+ \to [K^+ K^- \pi^+ \pi^-]_D K^+) = 0.095 \pm 0.023$

$A_{CP}(B^+ \to [K^+ K^- \pi^+ \pi^-]_D \pi^+) = -0.009 \pm 0.006$

$A_{CP}(B^+ \to \overline{D}^0 K^+) = -0.017 \pm 0.005$

$A_{CP}([K^\mp \pi^\pm \pi^+ \pi^-]_D K^+) = -0.32 \pm 0.04$

$A_{CP}(B^+ \to [\pi^+ \pi^+ \pi^- \pi^-]_D \pi^+) = (-8.2 \pm 3.2) \times 10^{-3}$

$A_{CP}(B^+ \to [K^- \pi^+]_D K^+) = -0.58 \pm 0.21$

$A_{CP}(B^+ \to [K^- \pi^+ \pi^0]_D K^+) = -0.27 \pm 0.27 \quad (S = 2.4)$

$A_{CP}(B^+ \to [K^+ \pi^- \pi^0]_D K^+) = -0.024 \pm 0.013$

$A_{CP}(B^+ \to [K^+ K^- \pi^0]_D K^+) = 0.07 \pm 0.07$

$A_{CP}(B^+ \to [\pi^+ \pi^- \pi^0]_D K^+) = 0.11 \pm 0.04$

$A_{CP}(B^+ \to \overline{D}^0 K^*(892)^+) = -0.007 \pm 0.019$

$A_{CP}(B^+ \to [K^- \pi^+]_{\overline{D}} K^*(892)^+) = -0.75 \pm 0.16$

$A_{CP}(B^+ \to [K^- \pi^+ \pi^- \pi^+]_{\overline{D}} K^*(892)^+) = -0.45 \pm 0.25$

$A_{CP}(B^+ \to [K^- \pi^+]_D \pi^+) = 0.00 \pm 0.09$

$A_{CP}(B^+ \to [K^- \pi^+ \pi^0]_D \pi^+) = 0.08 \pm 0.09$

$A_{CP}(B^+ \to [K^+ K^- \pi^0]_D \pi^+) = -0.001 \pm 0.019$

$A_{CP}(B^+ \to [\pi^+ \pi^- \pi^0]_D \pi^+) = 0.001 \pm 0.010$

$A_{CP}(B^+ \to [K^- \pi^+]_{(D\pi)} \pi^+) = -0.09 \pm 0.27$

$A_{CP}(B^+ \to [K^- \pi^+]_{(D\gamma)} \pi^+) = -0.7 \pm 0.6$

$A_{CP}(B^+ \to [K^- \pi^+]_{(D\pi)} K^+) = 0.8 \pm 0.4$

$A_{CP}(B^+ \to [K^- \pi^+]_{(D\gamma)} K^+) = 0.4 \pm 1.0$

$A_{CP}(B^+ \to [\pi^+ \pi^- \pi^0]_D K^+) = -0.02 \pm 0.15$

$A_{CP}(B^+ \to [K^0_S K^+ \pi^-]_D K^+) = 0.00 \pm 0.09 \quad (S = 1.4)$

$A_{CP}(B^+ \to [K^0_S K^- \pi^+]_D K^+) = 0.00 \pm 0.07$

$A_{CP}(B^+ \to [K_S^0 K^- \pi^+]_D \pi^+) = -0.003 \pm 0.014$

$A_{CP}(B^+ \to [K_S^0 K^+ \pi^-]_D \pi^+) = -0.016 \pm 0.025$ (S = 1.5)

$A_{CP}(B^+ \to [K^*(892)^- K^+]_D K^+) = 0.08 \pm 0.05$

$A_{CP}(B^+ \to [K^*(892)^+ K^-]_D K^+) = 0.07 \pm 0.09$

$A_{CP}(B^+ \to [K^*(892)^+ K^-]_D \pi^+) = 0.007 \pm 0.016$

$A_{CP}(B^+ \to [K^*(892)^- K^+]_D \pi^+) = -0.013 \pm 0.020$ (S = 1.9)

$\mathbf{A_{CP}(B^+ \to D_{CP(+1)} K^+) = 0.132 \pm 0.015}$ **(S = 1.8)**

$A_{ADS}(B^+ \to D K^+) = -0.451 \pm 0.026$

$A_{ADS}(B^+ \to D \pi^+) = 0.129 \pm 0.014$

$A_{ADS}(B^+ \to D^*(D\gamma) K^+) = -0.6 \pm 1.3$

$A_{ADS}(B^+ \to D^*(D\pi^0) K^+) = 0.72 \pm 0.29$

$A_{ADS}(B^+ \to D^*(D\gamma) \pi^+) = 0.08 \pm 0.13$

$A_{ADS}(B^+ \to D^*(D\pi^0) \pi^+) = -0.14 \pm 0.06$

$A_{ADS}(B^+ \to [K^- \pi^+]_D K^+ \pi^- \pi^+) = -0.33 \pm 0.35$

$A_{ADS}(B^+ \to [K^- \pi^+]_D \pi^+ \pi^- \pi^+) = -0.01 \pm 0.09$

$A_{CP}(B^+ \to D_{CP(-1)} K^+) = -0.10 \pm 0.07$

$A_{CP}(B^+ \to [K^+ K^-]_D K^+ \pi^- \pi^+) = -0.04 \pm 0.06$

$A_{CP}(B^+ \to [\pi^+ \pi^-]_D K^+ \pi^- \pi^+) = -0.05 \pm 0.10$

$A_{CP}(B^+ \to [K^- \pi^+]_D K^+ \pi^- \pi^+) = 0.013 \pm 0.023$

$A_{CP}(B^+ \to [K^+ K^-]_D \pi^+ \pi^- \pi^+) = -0.019 \pm 0.015$

$A_{CP}(B^+ \to [\pi^+ \pi^-]_D \pi^+ \pi^- \pi^+) = -0.013 \pm 0.019$

$A_{CP}(B^+ \to [K^- \pi^+]_D \pi^+ \pi^- \pi^+) = -0.002 \pm 0.011$

$A_{CP}(B^+ \to \overline{D}^{*0} \pi^+) = -0.0004 \pm 0.0021$ (S = 1.1)

$A_{CP}(B^+ \to D^{*0}_{CP(+1)} \pi^+) = 0.010 \pm 0.007$

$A_{CP}(B^+ \to D^{*0}_{CP(-1)} \pi^+) = -0.09 \pm 0.05$

$A_{CP}(B^+ \to D^{*0} K^+) = 0.012 \pm 0.010$ (S = 1.5)

$A_{CP}(B^+ \to D^{*0}_{CP(+1)} K^+) = -0.09 \pm 0.05$ (S = 2.6)

$A_{CP}(B^+ \to D^*_{CP(-1)} K^+) = 0.07 \pm 0.10$

$A_{CP}(B^+ \to D_{CP(+1)} K^*(892)^+) = 0.08 \pm 0.06$

$A_{CP}(B^+ \to D_{CP(-1)} K^*(892)^+) = -0.23 \pm 0.22$

$A_{CP}(B^+ \to D_s^+ \phi) = 0.0 \pm 0.4$

$A_{CP}(B^+ \to D_s^+ \overline{D}^0) = (0.5 \pm 0.6)\%$

$A_{CP}(B^+ \to D_s^{*+} \overline{D}^0) = (-0.5 \pm 1.5) \times 10^{-2}$

$A_{CP}(B^+ \to D_s^+ \overline{D}^{*0}) = (1.1 \pm 1.1) \times 10^{-2}$

$A_{CP}(B^+ \to D^{*+} \overline{D}^{*0}) = (1.3 \pm 2.6) \times 10^{-2}$

$A_{CP}(B^+ \to D^{*+} \overline{D}^0) = (3.1 \pm 1.7) \times 10^{-2}$

$A_{CP}(B^+ \to D^+ \overline{D}^{*0}) = (0.0 \pm 2.4) \times 10^{-2}$

$A_{CP}(B^+ \to D^+ \overline{D}^0) = (2.4 \pm 1.1) \times 10^{-2}$

$A_{CP}(B^+ \to K_S^0 \pi^+) = -0.003 \pm 0.015$ (S = 1.1)

$A_{CP}(B^+ \to K^+ \pi^0) = 0.027 \pm 0.012$

$A_{CP}(B^+ \to \eta' K^+) = 0.004 \pm 0.011$

$A_{CP}(B^+ \to \eta' K^*(892)^+) = -0.26 \pm 0.27$

$A_{CP}(B^+ \to \eta' K_0^*(1430)^+) = 0.06 \pm 0.20$

$A_{CP}(B^+ \to \eta' K_2^*(1430)^+) = 0.15 \pm 0.13$

$\boldsymbol{A_{CP}(B^+ \to \eta K^+) = -0.37 \pm 0.08}$

$A_{CP}(B^+ \to \eta K^*(892)^+) = 0.02 \pm 0.06$

$A_{CP}(B^+ \to \eta K_0^*(1430)^+) = 0.05 \pm 0.13$

$A_{CP}(B^+ \to \eta K_2^*(1430)^+) = -0.45 \pm 0.30$

$A_{CP}(B^+ \to \omega K^+) = -0.02 \pm 0.04$

$A_{CP}(B^+ \to \omega K^{*+}) = 0.29 \pm 0.35$

$A_{CP}(B^+ \to \omega (K\pi)_0^{*+}) = -0.10 \pm 0.09$

$A_{CP}(B^+ \to \omega K_2^*(1430)^+) = 0.14 \pm 0.15$

$A_{CP}(B^+ \to K^{*0}\pi^+) = -0.021 \pm 0.032$ $(S = 1.5)$

$A_{CP}(B^+ \to K^*(892)^+\pi^0) = -0.39 \pm 0.21$ $(S = 1.6)$

$\boldsymbol{A_{CP}(B^+ \to K^+\pi^-\pi^+) = 0.015 \pm 0.006}$ $(S = 1.4)$

$A_{CP}(B^+ \to K^+K^-K^+ \text{ nonresonant}) = 0.06 \pm 0.05$

$A_{CP}(B^+ \to f(980)^0 K^+) = -0.08 \pm 0.09$

$\boldsymbol{A_{CP}(B^+ \to f_2(1270) K^+) = -0.68^{+0.19}_{-0.17}}$

$A_{CP}(B^+ \to f_0(1500) K^+) = 0.28 \pm 0.30$

$A_{CP}(B^+ \to f_2'(1525)^0 K^+) = -0.08^{+0.05}_{-0.04}$

$\boldsymbol{A_{CP}(B^+ \to \rho^0 K^+) = 0.160 \pm 0.021}$

$A_{CP}(B^+ \to K^0\pi^+\pi^0) = 0.07 \pm 0.06$

$A_{CP}(B^+ \to K_0^*(1430)^0\pi^+) = 0.061 \pm 0.032$

$A_{CP}(B^+ \to K_0^*(1430)^+\pi^0) = 0.26^{+0.18}_{-0.14}$

$A_{CP}(B^+ \to K_2^*(1430)^0\pi^+) = 0.05^{+0.29}_{-0.24}$

$A_{CP}(B^+ \to K^+\pi^0\pi^0) = -0.06 \pm 0.07$

$A_{CP}(B^+ \to K^0\rho^+) = -0.03 \pm 0.15$

$A_{CP}(B^+ \to K^{*+}\pi^+\pi^-) = 0.07 \pm 0.08$

$A_{CP}(B^+ \to \rho^0 K^*(892)^+) = 0.31 \pm 0.13$

$A_{CP}(B^+ \to K^*(892)^+ f_0(980)) = -0.15 \pm 0.12$

$A_{CP}(B^+ \to a_1^+ K^0) = 0.12 \pm 0.11$

$A_{CP}(B^+ \to b_1^+ K^0) = -0.03 \pm 0.15$

$A_{CP}(B^+ \to K^*(892)^0 \rho^+) = -0.01 \pm 0.16$

$A_{CP}(B^+ \to b_1^0 K^+) = -0.46 \pm 0.20$

$A_{CP}(B^+ \to K^0 K^+) = 0.04 \pm 0.14$

$A_{CP}(B^+ \to K_S^0 K^+) = -0.21 \pm 0.14$

$A_{CP}(B^+ \to K^+ K_S^0 K_S^0) = 0.025 \pm 0.031$

$\boldsymbol{A_{CP}(B^+ \to K^+ K^- \pi^+) = -0.115 \pm 0.008}$

$A_{CP}(B^+ \to K^+ K^- \pi^+ \text{ nonresonant}) = -0.11 \pm 0.06$

$A_{CP}(B^+ \to \pi^+ K^+ K^-, m_{K^+K^-} < 1.1 \text{ GeV}) = -0.17 \pm 0.07$

$A_{CP}(B^+ \to K^+ \overline{K}^*(892)^0) = 0.04 \pm 0.05$

$A_{CP}(B^+ \to K^+ \overline{K}_0^*(1430)^0) = 0.10 \pm 0.17$

$A_{CP}(B^+ \to \phi\pi^+) = 0.1 \pm 0.5$

$A_{CP}(B^+ \to \pi^+(K^+K^-)_{S-wave}) = -0.66 \pm 0.04$

$\boldsymbol{A_{CP}(B^+ \to K^+K^-K^+) = -0.036 \pm 0.004}$

$A_{CP}(B^+ \to \phi K^+) = 0.017 \pm 0.017 \quad (S = 1.8)$

$A_{CP}(B^+ \to X_0(1550)K^+) = -0.04 \pm 0.07$

$A_{CP}(B^+ \to K^{*+}K^+K^-) = 0.11 \pm 0.09$

$A_{CP}(B^+ \to \phi K^*(892)^+) = -0.01 \pm 0.08$

$A_{CP}(B^+ \to \phi(K\pi)_0^{*+}) = 0.04 \pm 0.16$

$A_{CP}(B^+ \to \phi K_1(1270)^+) = 0.15 \pm 0.20$

$A_{CP}(B^+ \to \phi K_2^*(1430)^+) = -0.23 \pm 0.20$

$A_{CP}(B^+ \to K^+\phi\phi) = -0.08 \pm 0.07$

$A_{CP}(B^+ \to K^+[\phi\phi]_{\eta_c}) = 0.10 \pm 0.08$

$A_{CP}(B^+ \to K^*(892)^+\gamma) = 0.014 \pm 0.018$

$A_{CP}(B^+ \to X_s\gamma) = 0.028 \pm 0.019$

$A_{CP}(B^+ \to \eta K^+\gamma) = -0.12 \pm 0.07$

$A_{CP}(B^+ \to \phi K^+\gamma) = -0.13 \pm 0.11 \quad (S = 1.1)$

$A_{CP}(B^+ \to \rho^+\gamma) = -0.11 \pm 0.33$

$A_{CP}(B^+ \to \pi^+\pi^0) = -0.01 \pm 0.04 \quad (S = 1.1)$

$\boldsymbol{A_{CP}(B^+ \to \pi^+\pi^-\pi^+) = 0.076 \pm 0.008 \quad (S = 1.5)}$

$A_{CP}(B^+ \to \pi^+\pi^0\pi^0) = (9 \pm 7) \times 10^{-2}$

$A_{CP}(B^+ \to \rho^0\pi^+) = 0.003 \pm 0.014$

$A_{CP}(B^+ \to f_2(1270)\pi^+) = 0.40 \pm 0.06$

$A_{CP}(B^+ \to \rho^0(1450)\pi^+) = -0.11 \pm 0.05$

$A_{CP}(B^+ \to \rho_3(1690)\pi^+) = -0.80 \pm 0.28$

$\boldsymbol{A_{CP}(B^+ \to f_0(1370)\pi^+) = 0.72 \pm 0.22}$

$A_{CP}(B^+ \to \pi^+\pi^-\pi^+ \text{ nonresonant}) = -0.14^{+0.23}_{-0.16}$

$A_{CP}(B^+ \to \rho^+\pi^0) = 0.03 \pm 0.10$

$A_{CP}(B^+ \to X\pi^+, \ X \to \pi^0\pi^0) = 0.18 \pm 0.12$

$A_{CP}(B^+ \to \rho^+\rho^0) = -0.05 \pm 0.05$

$A_{CP}(B^+ \to \omega\pi^+) = -0.04 \pm 0.05$

$A_{CP}(B^+ \to \omega\rho^+) = -0.20 \pm 0.09$

$A_{CP}(B^+ \to \eta\pi^+) = -0.14 \pm 0.07 \quad (S = 1.4)$

$A_{CP}(B^+ \to \eta\rho^+) = 0.11 \pm 0.11$

$A_{CP}(B^+ \to \eta'\pi^+) = 0.06 \pm 0.16$

$A_{CP}(B^+ \to \eta'\rho^+) = 0.26 \pm 0.17$

$A_{CP}(B^+ \to b_1^0\pi^+) = 0.05 \pm 0.16$

$A_{CP}(B^+ \to p\overline{p}\pi^+) = 0.00 \pm 0.04$

$A_{CP}(B^+ \to p\overline{p}K^+) = 0.00 \pm 0.04 \quad (S = 2.2)$

$A_{CP}(B^+ \to p\overline{p}K^*(892)^+) = 0.21 \pm 0.16 \quad (S = 1.4)$

$A_{CP}(B^+ \to p\overline{\Lambda}\gamma) = 0.17 \pm 0.17$

$A_{CP}(B^+ \to p\overline{\Lambda}\pi^0) = 0.01 \pm 0.17$

$$A_{CP}(B^+ \to K^+ \ell^+ \ell^-) = -0.02 \pm 0.08$$
$$A_{CP}(B^+ \to K^+ e^+ e^-) = 0.14 \pm 0.14$$
$$A_{CP}(B^+ \to K^+ \mu^+ \mu^-) = 0.011 \pm 0.017$$
$$A_{CP}(B^+ \to \pi^+ \mu^+ \mu^-) = -0.11 \pm 0.12$$
$$A_{CP}(B^+ \to K^{*+} \ell^+ \ell^-) = -0.09 \pm 0.14$$
$$A_{CP}(B^+ \to K^* e^+ e^-) = -0.14 \pm 0.23$$
$$A_{CP}(B^+ \to K^* \mu^+ \mu^-) = -0.12 \pm 0.24$$
$$\boldsymbol{\gamma = (65.9^{+2.9}_{-3.1})^\circ}$$
$$\boldsymbol{r_B(B^+ \to D^0 K^+) = (9.94 \pm 0.26) \times 10^{-2}}$$
$$\boldsymbol{\delta_B(B^+ \to D^0 K^+) = (127.7^{+3.6}_{-3.9})^\circ}$$
$$\boldsymbol{r_B(B^+ \to D^0 K^{*+}) = 0.101^{+0.016}_{-0.034}}$$
$$\boldsymbol{\delta_B(B^+ \to D^0 K^{*+}) = (48^{+59}_{-16})^\circ}$$
$$\boldsymbol{r_B(B^+ \to D^{*0} K^+) = 0.104^{+0.013}_{-0.014}}$$
$$\boldsymbol{\delta_B(B^+ \to D^{*0} K^+) = (314.8^{+7.9}_{-9.9})^\circ}$$

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

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

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

For inclusive branching fractions, *e.g.*, $B \to D^\pm X$, the values usually are multiplicities, not branching fractions. They can be greater than one.

B^+ DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
Semileptonic and leptonic modes				
$\ell^+ \nu_\ell X$	[a]	(10.99 $\pm$ 0.28) %		−
$e^+ \nu_e X_c$		(10.8 $\pm$ 0.4) %		−
$\ell^+ \nu_\ell X_u$	[a]	(1.65 $\pm$ 0.21) $\times 10^{-3}$		−
$D \ell^+ \nu_\ell X$	[a]	(9.5 $\pm$ 0.7) %		−
$\overline{D}^0 \ell^+ \nu_\ell$	[a]	(2.21 $\pm$ 0.06) %		2310
$\overline{D}^0 \tau^+ \nu_\tau$		(7.7 $\pm$ 2.5) $\times 10^{-3}$		1911
$\overline{D}^*(2007)^0 \ell^+ \nu_\ell$	[a]	(5.53 $\pm$ 0.22) %		2258
$\overline{D}^*(2007)^0 \tau^+ \nu_\tau$		(1.88 $\pm$ 0.20) %		1839
$D^{(*)} n\pi \ell^+ \nu_\ell (n \geq 1)$	[a]	(1.83 $\pm$ 0.25) %		−
$D^- \pi^+ \ell^+ \nu_\ell$	[a]	(3.82 $\pm$ 0.20) $\times 10^{-3}$		2306

$\overline{D}_2^*(2460)^0 \ell^+ \nu_\ell,$ $\overline{D}_2^{*0} \to D^- \pi^+$	[a]	(1.59 $\pm$ 0.10) $\times 10^{-3}$			2065
$\overline{D}_0^*(2420)^0 \ell^+ \nu_\ell,$ $\overline{D}_0^{*0} \to D^- \pi^+$	[a]	(9 $\pm$ 5) $\times 10^{-4}$	S=2.6	–
$D^{*-} \pi^+ \ell^+ \nu_\ell$	[a]	(5.42 $\pm$ 0.28) $\times 10^{-3}$		2254
$\overline{D}_1(2420)^0 \ell^+ \nu_\ell, \ \overline{D}_1^0 \to$ $D^{*-} \pi^+$	[a]	(2.84 $\pm$ 0.17) $\times 10^{-3}$	S=1.1	2084
$\overline{D}_1'(2430)^0 \ell^+ \nu_\ell, \ \overline{D}_1'^0 \to$ $D^{*-} \pi^+$	[a]	(1.7 $\pm$ 0.6) $\times 10^{-3}$	S=1.8	–
$\overline{D}_2^*(2460)^0 \ell^+ \nu_\ell,$ $\overline{D}_2^{*0} \to D^{*-} \pi^+$	[a]	(1.06 $\pm$ 0.18) $\times 10^{-3}$	S=1.7	2065
$\overline{D}^0 \pi^+ \pi^- \ell^+ \nu_\ell$	[a]	(1.73 $\pm$ 0.19) $\times 10^{-3}$		2301
$\overline{D}_1(2420)^0 \ell^+ \nu_\ell, \ \overline{D}_1^0 \to$ $\overline{D}^0 \pi^+ \pi^-$	[a]	(1.05 $\pm$ 0.14) $\times 10^{-3}$		–
$\overline{D}^{*0} \pi^+ \pi^- \ell^+ \nu_\ell$	[a]	(7.0 $\pm$ 1.7) $\times 10^{-4}$		2248
$D_s^{(*)-} K^+ \ell^+ \nu_\ell$	[a]	(6.1 $\pm$ 1.0) $\times 10^{-4}$		–
$D_s^- K^+ \ell^+ \nu_\ell$	[a]	(3.0 $^{+\ 1.4}_{-\ 1.2}$) $\times 10^{-4}$		2242
$D_s^{*-} K^+ \ell^+ \nu_\ell$	[a]	(2.9 $\pm$ 1.9) $\times 10^{-4}$		2185
$\pi^0 \ell^+ \nu_\ell$	[a]	(7.80 $\pm$ 0.27) $\times 10^{-5}$		2638
$\eta \ell^+ \nu_\ell$	[a]	(3.5 $\pm$ 0.4) $\times 10^{-5}$		2611
$\eta' \ell^+ \nu_\ell$	[a]	(2.4 $\pm$ 0.7) $\times 10^{-5}$		2553
$\omega \ell^+ \nu_\ell$	[a]	(1.19 $\pm$ 0.09) $\times 10^{-4}$		2582
$\rho^0 \ell^+ \nu_\ell$	[a]	(1.58 $\pm$ 0.11) $\times 10^{-4}$		2583
$\pi^+ \pi^- \ell^+ \nu_\ell$	[a]	(2.3 $\pm$ 0.4) $\times 10^{-4}$		2636
$p \overline{p} \ell^+ \nu_\ell$	[a]	(5.8 $^{+\ 2.6}_{-\ 2.3}$) $\times 10^{-6}$		2467
$p \overline{p} \mu^+ \nu_\mu$		(5.32 $\pm$ 0.34) $\times 10^{-6}$		2446
$p \overline{p} e^+ \nu_e$		(8.2 $^{+\ 4.0}_{-\ 3.3}$) $\times 10^{-6}$		2467
$e^+ \nu_e$		< 9.8 $\times 10^{-7}$	CL=90%	2640
$\mu^+ \nu_\mu$		< 8.6 $\times 10^{-7}$	CL=90%	2639
$\tau^+ \nu_\tau$		(1.09 $\pm$ 0.24) $\times 10^{-4}$	S=1.2	2341
$\ell^+ \nu_\ell \gamma$	[a]	< 3.0 $\times 10^{-6}$	CL=90%	2640
$e^+ \nu_e \gamma$		< 4.3 $\times 10^{-6}$	CL=90%	2640
$\mu^+ \nu_\mu \gamma$		< 3.4 $\times 10^{-6}$	CL=90%	2639
$\mu^+ \mu^- \mu^+ \nu_\mu$		< 1.6 $\times 10^{-8}$	CL=95%	2634

Inclusive modes

$D^0 X$	(8.6 $\pm$ 0.7) %	–
$\overline{D}^0 X$	(79 $\pm$ 4) %	–
$D^+ X$	(2.5 $\pm$ 0.5) %	–
$D^- X$	(9.9 $\pm$ 1.2) %	–
$D_s^+ X$	(7.9 $^{+\ 1.4}_{-\ 1.3}$) %	–

$D_s^- X$		($1.10 ^{+\ 0.40}_{-\ 0.32}$) %		$-$
$\Lambda_c^+ X$		($2.1 ^{+\ 0.9}_{-\ 0.6}$) %		$-$
$\overline{\Lambda}_c^- X$		($2.8 ^{+\ 1.1}_{-\ 0.9}$) %		$-$
$\overline{c} X$		(97 ± 4) %		$-$
$c X$		($23.4 ^{+\ 2.2}_{-\ 1.8}$) %		$-$
$c / \overline{c} X$		(120 ± 6) %		$-$

D, D^*, or D_s modes

$\overline{D}^0 \pi^+$		(4.61 ± 0.10) $\times 10^{-3}$		2308
$D_{CP(+1)} \pi^+$	[b]	(2.03 ± 0.19) $\times 10^{-3}$		$-$
$D_{CP(-1)} \pi^+$	[b]	(2.0 ± 0.4) $\times 10^{-3}$		$-$
$\overline{D}^0 \rho^+$		(1.34 ± 0.18) %		2237
$\overline{D}^0 K^+$		(3.64 ± 0.15) $\times 10^{-4}$		2281
$D_{CP(+1)} K^+$	[b]	(1.80 ± 0.08) $\times 10^{-4}$		$-$
$D_{CP(-1)} K^+$	[b]	(1.96 ± 0.18) $\times 10^{-4}$		$-$
$D^0 K^+$		(3.60 ± 0.24) $\times 10^{-6}$		2281
$[K^- \pi^+]_D K^+$	[c]	$< 2.8 \times 10^{-7}$	CL=90%	$-$
$[K^+ \pi^-]_D K^+$	[c]	$< 2.0 \times 10^{-5}$	CL=90%	$-$
$[K^- \pi^+ \pi^0]_D K^+$		seen		$-$
$[K^+ \pi^- \pi^0]_D K^+$		seen		$-$
$[K^- \pi^+ \pi^+ \pi^-]_D K^+$		seen		$-$
$[K^+ \pi^- \pi^+ \pi^-]_D K^+$		seen		$-$
$[K^- \pi^+]_D \pi^+$	[c]	(6.3 ± 1.1) $\times 10^{-7}$		$-$
$[K^+ \pi^-]_D \pi^+$		(1.7 ± 0.4) $\times 10^{-4}$		$-$
$[K^- \pi^+ \pi^0]_D \pi^+$		seen		$-$
$[K^+ \pi^- \pi^0]_D \pi^+$		seen		$-$
$[K^- \pi^+ \pi^+ \pi^-]_D \pi^+$		seen		$-$
$[K^+ \pi^- \pi^+ \pi^-]_D \pi^+$		seen		$-$
$[\pi^+ \pi^- \pi^0]_D K^-$		(4.6 ± 0.9) $\times 10^{-6}$		$-$
$[K_S^0 K^+ \pi^-]_D K^+$		seen		$-$
$[K_S^0 K^- \pi^+]_D K^+$		seen		$-$
$[K^*(892)^+ K^-]_D K^+$		seen		$-$
$[K_S^0 K^- \pi^+]_D \pi^+$		seen		$-$
$[K^*(892)^+ K^-]_D \pi^+$		seen		$-$
$[K_S^0 K^+ \pi^-]_D \pi^+$		seen		$-$
$[K^*(892)^- K^+]_D \pi^+$		seen		$-$
$\overline{D}^0 K^*(892)^+$		(5.3 ± 0.4) $\times 10^{-4}$		2213
$D_{CP(-1)} K^*(892)^+$	[b]	(2.7 ± 0.8) $\times 10^{-4}$		$-$
$D_{CP(+1)} K^*(892)^+$	[b]	(6.2 ± 0.7) $\times 10^{-4}$		$-$
$D^0 K^*(892)^+$		($5.4 ^{+\ 1.8}_{-\ 4.0}$) $\times 10^{-6}$		2213

$\overline{D}^0 K^+ \pi^+ \pi^-$		(	5.2	$\pm$ 2.1	$) \times 10^{-4}$	2237
$\overline{D}^0 K^+ \overline{K}^0$		(	5.5	$\pm$ 1.6	$) \times 10^{-4}$	2189
$\overline{D}^0 K^+ \overline{K}^*(892)^0$		(	7.5	$\pm$ 1.7	$) \times 10^{-4}$	2072
$\overline{D}^0 \pi^+ \pi^+ \pi^-$		(	5.5	$\pm$ 2.0	$) \times 10^{-3}$ S=3.6	2289
$\overline{D}^0 \pi^+ \pi^+ \pi^-$ nonresonant		(	5	$\pm$ 4	$) \times 10^{-3}$	2289
$\overline{D}^0 \pi^+ \rho^0$		(	4.2	$\pm$ 3.0	$) \times 10^{-3}$	2208
$\overline{D}^0 a_1(1260)^+$		(	4	$\pm$ 4	$) \times 10^{-3}$	2123
$\overline{D}^0 \omega \pi^+$		(	4.1	$\pm$ 0.9	$) \times 10^{-3}$	2206
$D^*(2010)^- \pi^+ \pi^+$		(	1.35	$\pm$ 0.22	$) \times 10^{-3}$	2247
$D^*(2010)^- K^+ \pi^+$		(	8.2	$\pm$ 1.4	$) \times 10^{-5}$	2206
$\overline{D}_1(2420)^0 \pi^+, \ \overline{D}_1^0 \to$ $D^*(2010)^- \pi^+$		(	8.4	$\pm$ 1.5	$) \times 10^{-4}$	2081
$D^- \pi^+ \pi^+$		(	1.07	$\pm$ 0.05	$) \times 10^{-3}$	2299
$D^- K^+ \pi^+$		(	7.7	$\pm$ 0.5	$) \times 10^{-5}$	2260
$D_0^*(2300)^0 K^+, \ D_0^{*0} \to$ $D^- \pi^+$		(	6.1	$\pm$ 2.4	$) \times 10^{-6}$	–
$D_2^*(2460)^0 K^+, \ D_2^{*0} \to$ $D^- \pi^+$		(	2.32	$\pm$ 0.23	$) \times 10^{-5}$	–
$D_1^*(2760)^0 K^+, \ D_1^{*0} \to$ $D^- \pi^+$		(	3.6	$\pm$ 1.2	$) \times 10^{-6}$	–
$D^+ K^0$	<		2		$\times 10^{-6}$ CL=90%	2278
$D^+ K^+ \pi^-$		(	5.6	$\pm$ 1.1	$) \times 10^{-6}$	2260
$D^+ \eta$	<		1.2		$\times 10^{-5}$ CL=90%	2272
$D_2^*(2460)^0 K^+, \ D_2^{*0} \to$ $D^+ \pi^-$	<		6.3		$\times 10^{-7}$ CL=90%	–
$D^+ K^{*0}$	<		4.9		$\times 10^{-7}$ CL=90%	2211
$D^+ \overline{K}^{*0}$	<		1.4		$\times 10^{-6}$ CL=90%	2211
$\overline{D}^*(2007)^0 \pi^+$		(	5.17	$\pm$ 0.15	$) \times 10^{-3}$	2256
$\overline{D}^{*0}_{CP(+1)} \pi^+$	[d] (		2.9	$\pm$ 0.6	$) \times 10^{-3}$	–
$D^{*0}_{CP(-1)} \pi^+$	[d] (		2.6	$\pm$ 1.0	$) \times 10^{-3}$	–
$\overline{D}^*(2007)^0 \omega \pi^+$		(	4.5	$\pm$ 1.2	$) \times 10^{-3}$	2149
$\overline{D}^*(2007)^0 \rho^+$		(	9.8	$\pm$ 1.7	$) \times 10^{-3}$	2182
$\overline{D}^*(2007)^0 K^+$		(	4.19	$^{+\ 0.31}_{-\ 0.28}$	$) \times 10^{-4}$	2227
$\overline{D}^{*0}_{CP(+1)} K^+$	[d] (		2.75	$\pm$ 0.35	$) \times 10^{-4}$	–
$\overline{D}^{*0}_{CP(-1)} K^+$	[d] (		2.31	$\pm$ 0.31	$) \times 10^{-4}$	–
$D^*(2007)^0 K^+$		(	4.5	$\pm$ 1.2	$) \times 10^{-6}$	2227
$\overline{D}^*(2007)^0 K^*(892)^+$		(	8.1	$\pm$ 1.4	$) \times 10^{-4}$	2156
$\overline{D}^*(2007)^0 K^+ \overline{K}^0$	<		1.06		$\times 10^{-3}$ CL=90%	2132
$\overline{D}^*(2007)^0 K^+ \overline{K}^*(892)^0$		(	1.5	$\pm$ 0.4	$) \times 10^{-3}$	2009
$\overline{D}^*(2007)^0 \pi^+ \pi^+ \pi^-$		(	1.03	$\pm$ 0.12	) %	2236
$\overline{D}^*(2007)^0 a_1(1260)^+$		(	1.9	$\pm$ 0.5	) %	2063
$\overline{D}^*(2007)^0 \pi^- \pi^+ \pi^+ \pi^0$		(	1.8	$\pm$ 0.4	) %	2219

$\overline{D}^{*0} 3\pi^+ 2\pi^-$		(5.7	$\pm$ 1.2	) $\times 10^{-3}$		2196
$D^*(2010)^+ \pi^0$		< 3.6		$\times 10^{-6}$		2255
$D^*(2010)^+ K^0$		< 9.0		$\times 10^{-6}$	CL=90%	2225
$D^*(2010)^- \pi^+ \pi^+ \pi^0$		(1.5	$\pm$ 0.7	) %		2235
$D^*(2010)^- \pi^+ \pi^+ \pi^+ \pi^-$		(2.6	$\pm$ 0.4	) $\times 10^{-3}$		2217
$\overline{D}^{**0} \pi^+$	[e]	(5.6	$\pm$ 1.2	) $\times 10^{-3}$		–
$\overline{D}_1^*(2420)^0 \pi^+$		(1.5	$\pm$ 0.6	) $\times 10^{-3}$	S=1.3	2081
$\overline{D}_1(2420)^0 \pi^+ \times$ B$(\overline{D}_1^0 \to$ $\overline{D}^0 \pi^+ \pi^-)$		(2.5	$^{+\ 1.6}_{-\ 1.4}$	) $\times 10^{-4}$	S=3.8	2081
$\overline{D}_1(2420)^0 \pi^+ \times$ B$(\overline{D}_1^0 \to$ $\overline{D}^0 \pi^+ \pi^-$ (nonresonant))		(2.2	$\pm$ 0.9	) $\times 10^{-4}$		2081
$\overline{D}_1(2430)^0 \pi^+$, $\overline{D}_1^0 \to$ $D^*(2010)^- \pi^+$		(3.5	$\pm$ 0.6	) $\times 10^{-4}$		2079
$\overline{D}(2550)^0 \pi^+$, $\overline{D}^0 \to$ $D^*(2010)^- \pi^+$		(7.2	$\pm$ 1.4	) $\times 10^{-5}$		–
$\overline{D}_J^*(2600)^0 \pi^+$, $\overline{D}_J^{*0} \to$ $D^*(2010)^- \pi^+$		(6.8	$\pm$ 1.3	) $\times 10^{-5}$		–
$\overline{D}_2^*(2462)^0 \pi^+$, $\overline{D}_2^{*0} \to D^- \pi^+$		(3.56	$\pm$ 0.24	) $\times 10^{-4}$		–
$\overline{D}_2^*(2462)^0 \pi^+$, $\overline{D}_2^{*0} \to$ $\overline{D}^0 \pi^- \pi^+$		(2.2	$\pm$ 1.0	) $\times 10^{-4}$		–
$\overline{D}_2^*(2462)^0 \pi^+$, $\overline{D}_2^{*0} \to$ $\overline{D}^0 \pi^- \pi^+$ (nonresonant)		< 1.6		$\times 10^{-4}$	CL=90%	–
$\overline{D}_2^*(2462)^0 \pi^+$, $\overline{D}_2^{*0} \to$ $D^*(2010)^- \pi^+$		(2.1	$\pm$ 1.0	) $\times 10^{-4}$		–
$\overline{D}_0^*(2400)^0 \pi^+$ $\times$ B$(\overline{D}_0^*(2400)^0 \to D^- \pi^+)$		(6.4	$\pm$ 1.4	) $\times 10^{-4}$		2136
$\overline{D}_1(2421)^0 \pi^+$, $\overline{D}_1^0 \to D^{*-} \pi^+$		(7.4	$\pm$ 1.0	) $\times 10^{-4}$		–
$\overline{D}_2^*(2462)^0 \pi^+$, $\overline{D}_2^{*0} \to$ $D^{*-} \pi^+$		(1.98	$\pm$ 0.30	) $\times 10^{-4}$		–
$\overline{D}_1'(2427)^0 \pi^+$, $\overline{D}_1'^0 \to$ $D^{*-} \pi^+$		(3.5	$\pm$ 0.9	) $\times 10^{-4}$	S=1.5	–
$\overline{D}_1(2420)^0 \pi^+ \times$B$(\overline{D}_1^0 \to$ $\overline{D}^{*0} \pi^+ \pi^-)$		< 6		$\times 10^{-6}$	CL=90%	2081
$\overline{D}_1^*(2420)^0 \rho^+$		< 1.4		$\times 10^{-3}$	CL=90%	1996
$\overline{D}_2^*(2460)^0 \pi^+$		< 1.3		$\times 10^{-3}$	CL=90%	2063
$\overline{D}_2^*(2460)^0 \pi^+ \times$B$(\overline{D}_2^{*0} \to$ $\overline{D}^{*0} \pi^+ \pi^-)$		< 2.2		$\times 10^{-5}$	CL=90%	2063
$\overline{D}_1^*(2680)^0 \pi^+$, $\overline{D}_1^*(2680)^0 \to$ $D^- \pi^+$		(8.4	$\pm$ 2.1	) $\times 10^{-5}$		–
$\overline{D}(2740)^0 \pi^+$, $\overline{D}^0 \to$ $D^*(2010)^- \pi^+$		(3.3	$\pm$ 1.5	) $\times 10^{-5}$		–

$\overline{D}_3^*(2750)^0\pi^+$, $\overline{D}_3^{*0} \to$ $D^*(2010)^-\pi^+$	$(1.10 \pm 0.32) \times 10^{-5}$		1913
$\overline{D}_3^*(2760)^0\pi^+$, $\overline{D}_3^*(2760)^0\pi^+ \to D^-\pi^+$	$(1.00 \pm 0.22) \times 10^{-5}$		–
$\overline{D}_2^*(3000)^0\pi^+$, $\overline{D}_2^*(3000)^0\pi^+ \to D^-\pi^+$	$(2.0 \pm 1.4) \times 10^{-6}$		–
$\overline{D}_2^*(2460)^0\rho^+$	$< 4.7 \times 10^{-3}$	CL=90%	1977
$\overline{D}^0 D_s^+$	$(9.0 \pm 0.9) \times 10^{-3}$		1815
$D_{s0}^*(2317)^+\overline{D}^0$, $D_{s0}^{*+} \to D_s^+\pi^0$	$(8.0 \, {}^{+\,1.6}_{-\,1.3}) \times 10^{-4}$		1605
$D_{s0}(2317)^+\overline{D}^0 \times$ $B(D_{s0}(2317)^+ \to D_s^{*+}\gamma)$	$< 7.6 \times 10^{-4}$	CL=90%	1605
$D_{s0}(2317)^+\overline{D}^*(2007)^0 \times$ $B(D_{s0}(2317)^+ \to D_s^+\pi^0)$	$(9 \pm 7) \times 10^{-4}$		1511
$D_{sJ}(2457)^+\overline{D}^0$	$(3.1 \, {}^{+\,1.0}_{-\,0.9}) \times 10^{-3}$		–
$D_{sJ}(2457)^+\overline{D}^0 \times$ $B(D_{sJ}(2457)^+ \to D_s^+\gamma)$	$(4.6 \, {}^{+\,1.3}_{-\,1.1}) \times 10^{-4}$		–
$D_{sJ}(2457)^+\overline{D}^0 \times$ $B(D_{sJ}(2457)^+ \to D_s^+\pi^+\pi^-)$	$< 2.2 \times 10^{-4}$	CL=90%	–
$D_{sJ}(2457)^+\overline{D}^0 \times$ $B(D_{sJ}(2457)^+ \to D_s^+\pi^0)$	$< 2.7 \times 10^{-4}$	CL=90%	–
$D_{sJ}(2457)^+\overline{D}^0 \times$ $B(D_{sJ}(2457)^+ \to D_s^{*+}\gamma)$	$< 9.8 \times 10^{-4}$	CL=90%	–
$D_{sJ}(2457)^+\overline{D}^*(2007)^0$	$(1.20 \pm 0.30) \%$		–
$D_{sJ}(2457)^+\overline{D}^*(2007)^0 \times$ $B(D_{sJ}(2457)^+ \to D_s^+\gamma)$	$(1.4 \, {}^{+\,0.7}_{-\,0.6}) \times 10^{-3}$		–
$\overline{D}^0 D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \to D^*(2007)^0 K^+ + D^*(2010)^+ K^0)$	$(4.0 \pm 1.0) \times 10^{-4}$		1447
$\overline{D}^0 D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \to D^*(2007)^0 K^+)$	$(2.2 \pm 0.7) \times 10^{-4}$		1447
$\overline{D}^*(2007)^0 D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \to D^*(2007)^0 K^+)$	$(5.5 \pm 1.6) \times 10^{-4}$		1339
$\overline{D}^0 D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \to D^{*+} K^0)$	$(2.3 \pm 1.1) \times 10^{-4}$		1447

$\overline{D}^0 D_{sJ}(2700)^+ \times$ $B(D_{sJ}(2700)^+ \to D^0 K^+)$	(	5.6	$\pm$ 1.8	) $\times 10^{-4}$	S=1.7	–
$\overline{D}^{*0} D_{s1}(2536)^+,\ D_{s1}^+ \to$ $D^{*+} K^0$	(	3.9	$\pm$ 2.6	) $\times 10^{-4}$		1339
$\overline{D}^0 D_{sJ}(2573)^+,\ D_{sJ}^+ \to$ $D^0 K^+$	(	8	$\pm$ 15	) $\times 10^{-6}$		–
$\overline{D}^{*0} D_{sJ}(2573),\ D_{sJ}^+ \to$ $D^0 K^+$	<	2		$\times 10^{-4}$	CL=90%	1306
$\overline{D}^*(2007)^0 D_{sJ}(2573),\ D_{sJ}^+ \to$ $D^0 K^+$	<	5		$\times 10^{-4}$	CL=90%	1306
$\overline{D}^0 D_s^{*+}$	(	7.6	$\pm$ 1.6	) $\times 10^{-3}$		1734
$D^- D_s^+ \pi^+$	(	5.6	$\pm$ 1.6	) %		1736
$\overline{D}^*(2007)^0 D_s^+$	(	8.2	$\pm$ 1.7	) $\times 10^{-3}$		1737
$\overline{D}^*(2007)^0 D_s^{*+}$	(	1.71	$\pm$ 0.24	) %		1651
$\overline{D}_2^*(2460)^0 D_s^+$	(	1.2	$\pm$ 0.4	) %		1430
$\overline{D}_1^*(2600)^0 D_s^+$	(	8	$\pm$ 5	) $\times 10^{-4}$		1289
$\overline{D}_3^*(2750)^0 D_s^+$	(	1.7	$\pm$ 1.4	) $\times 10^{-4}$		–
$\overline{D}_1^*(2760)^0 D_s^+$	(	2	$\pm$ 9	) $\times 10^{-4}$		1139
$\overline{D}_J^*(3000)^0 D_s^+$	(	2.5	$\pm$ 2.4	) $\times 10^{-4}$		–
$T_{cs0}^*(2900)^{++} D^-$	(	1.3	$\pm$ 0.7	) $\times 10^{-3}$		–
$D_s^{(*)+} \overline{D}^{**0}$	(	2.7	$\pm$ 1.2	) %		–
$\overline{D}^*(2007)^0 D^*(2010)^+$	(	8.1	$\pm$ 1.7	) $\times 10^{-4}$		1713
$\overline{D}^0 D^*(2010)^+ +$ $\overline{D}^*(2007)^0 D^+$	<	1.30		%	CL=90%	1792
$\overline{D}^0 D^*(2010)^+$	(	3.9	$\pm$ 0.5	) $\times 10^{-4}$		1792
$\overline{D}^0 D^+$	(	3.8	$\pm$ 0.4	) $\times 10^{-4}$		1866
$\overline{D}^0 D^+ K^0$	(	1.55	$\pm$ 0.21	) $\times 10^{-3}$		1571
$D^+ \overline{D}^*(2007)^0$	(	6.3	$\pm$ 1.7	) $\times 10^{-4}$		1791
$\overline{D}^*(2007)^0 D^+ K^0$	(	2.1	$\pm$ 0.5	) $\times 10^{-3}$		1475
$\overline{D}^0 D^*(2010)^+ K^0$	(	3.8	$\pm$ 0.4	) $\times 10^{-3}$		1476
$\overline{D}^*(2007)^0 D^*(2010)^+ K^0$	(	9.2	$\pm$ 1.2	) $\times 10^{-3}$		1362
$\overline{D}^0 D^0 K^+$	(	1.45	$\pm$ 0.33	) $\times 10^{-3}$	S=2.6	1577
$\overline{D}^*(2007)^0 D^0 K^+$	(	2.26	$\pm$ 0.23	) $\times 10^{-3}$		1481
$\overline{D}^0 D^*(2007)^0 K^+$	(	6.3	$\pm$ 0.5	) $\times 10^{-3}$		1481
$\overline{D}^*(2007)^0 D^*(2007)^0 K^+$	(	1.12	$\pm$ 0.13	) %		1368
$D^- D^+ K^+$	(	2.2	$\pm$ 0.7	) $\times 10^{-4}$		1571
$T_{cs0}^*(2870)^0 D^+,\ T_{cs0}^{*0} \to$ $D^- K^+$	(	1.2	$\pm$ 0.5	) $\times 10^{-5}$		–
$T_{cs1}^*(2900)^0 D^+,\ T_{cs1}^{*0} \to$ $D^- K^+$	(	6.7	$\pm$ 2.3	) $\times 10^{-5}$		–
$D^- D^+ K^+$ nonresonant	(	5.3	$\pm$ 1.8	) $\times 10^{-5}$		1571
$D^- D^*(2010)^+ K^+$	(	6.3	$\pm$ 1.1	) $\times 10^{-4}$		1475
$D^*(2010)^- D^+ K^+$	(	6.0	$\pm$ 1.3	) $\times 10^{-4}$		1475

$D^*(2010)^- D^*(2010)^+ K^+$	(	1.32 ± 0.18) $\times 10^{-3}$		1363
$(\overline{D} + \overline{D}^*)(D + D^*)K$	(	4.05 ± 0.30) %		–
$D_s^- D_s^+ K^+$	(	1.2 ± 0.4) $\times 10^{-4}$		1429
$D_s^+ \pi^0$	(	1.6 ± 0.5) $\times 10^{-5}$		2270
$D_s^{*+} \pi^0$	<	2.6×10^{-4}	CL=90%	2215
$D_s^+ \eta$	<	1.4×10^{-5}	CL=90%	2235
$D_s^{*+} \eta$	<	1.7×10^{-5}	CL=90%	2178
$D_s^+ \rho^0$	<	3.0×10^{-4}	CL=90%	2197
$D_s^{*+} \rho^0$	<	4×10^{-4}	CL=90%	2138
$D_s^+ \omega$	<	4×10^{-4}	CL=90%	2195
$D_s^{*+} \omega$	<	6×10^{-4}	CL=90%	2136
$D_s^+ a_1(1260)^0$	<	1.8×10^{-3}	CL=90%	2080
$D_s^{*+} a_1(1260)^0$	<	1.3×10^{-3}	CL=90%	2015
$D_s^+ K^+ K^-$	(	7.2 ± 1.1) $\times 10^{-6}$		2149
$D_s^+ \phi$	<	4.2×10^{-7}	CL=90%	2141
$D_s^{*+} \phi$	<	1.2×10^{-5}	CL=90%	2079
$D_s^+ \overline{K}^0$	<	3×10^{-6}	CL=90%	2242
$D_s^{*+} \overline{K}^0$	<	6×10^{-6}	CL=90%	2185
$D_s^+ \overline{K}^*(892)^0$	<	4.4×10^{-6}	CL=90%	2172
$D_s^+ K^{*0}$	<	3.5×10^{-6}	CL=90%	2172
$D_s^{*+} \overline{K}^*(892)^0$	<	3.5×10^{-4}	CL=90%	2112
$D_s^- \pi^+ K^+$	(	1.80 ± 0.22) $\times 10^{-4}$		2222
$D_s^{*-} \pi^+ K^+$	(	1.45 ± 0.24) $\times 10^{-4}$		2164
$D_s^- \pi^+ K^*(892)^+$	<	5×10^{-3}	CL=90%	2138
$D_s^{*-} \pi^+ K^*(892)^+$	<	7×10^{-3}	CL=90%	2076
$D_s^- K^+ K^+$	(	9.7 ± 2.1) $\times 10^{-6}$		2149
$D_s^{*-} K^+ K^+$	<	1.5×10^{-5}	CL=90%	2088

Charmonium modes

$\eta_c K^+$	(	1.10 ± 0.07) $\times 10^{-3}$	S=1.1	1751
$\eta_c K^*(892)^+$	(	$1.2 \; {}^{+0.5}_{-0.4}$) $\times 10^{-3}$		1646
$\eta_c K^+ \pi^+ \pi^-$	<	3.9×10^{-4}	CL=90%	1684
$\eta_c K^+ \omega(782)$	<	5.3×10^{-4}	CL=90%	1475
$\eta_c K^+ \eta$	<	2.2×10^{-4}	CL=90%	1588
$\eta_c K^+ \pi^0$	<	6.2×10^{-5}	CL=90%	1723
$\eta_c(2S)K^+$	(	4.4 ± 1.0) $\times 10^{-4}$		1320
$\eta_c(2S)K^+, \; \eta_c \to p\overline{p}$	(	3.5 ± 0.8) $\times 10^{-8}$		–
$\eta_c(2S)K^+, \; \eta_c \to K_S^0 K^\mp \pi^\pm$	(	$3.4 \; {}^{+2.3}_{-1.6}$) $\times 10^{-6}$		–
$\eta_c(2S)K^+, \; \eta_c \to p\overline{p}\pi^+\pi^-$	(	1.12 ± 0.18) $\times 10^{-6}$		–
$h_c(1P)K^+, \; h_c \to J/\psi \pi^+ \pi^-$	<	3.4×10^{-6}	CL=90%	1401

$X(3730)^0 K^+$, $X^0 \to \eta_c \eta$	<	4.6	$\times 10^{-5}$ CL=90%	–
$X(3730)^0 K^+$, $X^0 \to \eta_c \pi^0$	<	5.7	$\times 10^{-6}$ CL=90%	–
$\eta_{c2}(1D) K^+$, $\eta_{c2} \to h_c \gamma$	<	3.7	$\times 10^{-5}$ CL=90%	–
$\eta_{c2}(1D) \pi^+ K_S^0$, $\eta_{c2} \to h_c \gamma$	<	1.1	$\times 10^{-4}$ CL=90%	–
$\psi_2(3823) K^+$, $\psi_2 \to$ $J/\psi \pi^+ \pi^-$	(	2.8 ± 0.6	$) \times 10^{-7}$	–
$\psi_2(3823) K^+$, $\psi_2 \to J/\psi \eta$	(	$1.2 {}^{+\,0.7}_{-\,0.5}$	$) \times 10^{-6}$	–
$\psi_3(3842) K^+$, $\psi_3 \to J/\psi \eta$	<	6.1	$\times 10^{-7}$ CL=90%	–
$\chi_{c1}(3872) K^+$	(	2.3 ± 0.6	$) \times 10^{-4}$	1141
$\chi_{c0}(3915) K^+$	<	2.8	$\times 10^{-4}$ CL=90%	1100
$\chi_{c0}(3915) K^+$, $\chi_{c0} \to D^+ D^-$	(	8.1 ± 3.3	$) \times 10^{-6}$	–
$\chi_{c0}(3915) K^+$, $\chi_{c0} \to \eta_c \eta$	<	4.7	$\times 10^{-5}$ CL=90%	–
$\chi_{c0}(3915) K^+$, $\chi_{c0} \to \eta_c \pi^0$	<	1.7	$\times 10^{-5}$ CL=90%	–
$X(4014)^0 K^+$, $X^0 \to \eta_c \eta$	<	3.9	$\times 10^{-5}$ CL=90%	–
$X(4014)^0 K^+$, $X^0 \to \eta_c \pi^0$	<	1.2	$\times 10^{-5}$ CL=90%	–
$T_{c\bar{c}1}(3900)^0 K^+$, $T_{c\bar{c}1}^0 \to$ $\eta_c \pi^+ \pi^-$	<	4.7	$\times 10^{-5}$ CL=90%	–
$T_{c\bar{c}1}(3900)^0 K^+$, $T_{c\bar{c}1}^0 \to$ $J/\psi \eta$	<	4.3	$\times 10^{-7}$ CL=90%	–
$T_{c\bar{c}}(4020)^0 K^+$, $T_{c\bar{c}}^0 \to$ $\eta_c \pi^+ \pi^-$	<	1.6	$\times 10^{-5}$ CL=90%	–
$\chi_{c1}(3872) K^*(892)^+$	<	6	$\times 10^{-4}$ CL=90%	940
$\chi_{c1}(3872)^+ K^0$, $\chi_{c1}^+ \to$ $J/\psi(1S) \pi^+ \pi^0$	[f] <	6.1	$\times 10^{-6}$ CL=90%	–
$\chi_{c1}(3872) K^0 \pi^+$	(	3.0 ± 1.2	$) \times 10^{-4}$	1085
$T_{c\bar{c}1}(4430)^+ K^0$, $T_{c\bar{c}1}^+ \to$ $J/\psi \pi^+$	<	1.5	$\times 10^{-5}$ CL=95%	–
$T_{c\bar{c}1}(4430)^+ K^0$, $T_{c\bar{c}1}^+ \to$ $\psi(2S) \pi^+$	<	4.7	$\times 10^{-5}$ CL=95%	–
$T_{c\bar{c}1}(4430)^0 K^+$, $T_{c\bar{c}1}^0 \to$ $J/\psi \eta$	<	1.27	$\times 10^{-6}$ CL=90%	–
$\psi(4230)^0 K^+$, $\psi^0 \to$ $J/\psi \pi^+ \pi^-$	<	1.56	$\times 10^{-5}$ CL=95%	–
$\psi(4230) K^+$, $\psi \to J/\psi \eta$	<	3.9	$\times 10^{-7}$ CL=90%	–
$\psi(4360) K^+$, $\psi \to J/\psi \eta$	<	1.24	$\times 10^{-6}$ CL=90%	–
$\psi(4390) K^+$, $\psi \to J/\psi \eta$	<	2.41	$\times 10^{-6}$ CL=90%	–
$\chi_{c0}(3915) K^+$, $\chi_{c0} \to J/\psi \gamma$	<	1.4	$\times 10^{-5}$ CL=90%	–
$\chi_{c0}(3915) K^+$, $\chi_{c0} \to$ $\chi_{c1}(1P) \pi^0$	<	3.8	$\times 10^{-5}$ CL=90%	–
$X(3930)^0 K^+$, $X^0 \to J/\psi \gamma$	<	2.5	$\times 10^{-6}$ CL=90%	–
$J/\psi(1S) K^+$	(	1.020 ± 0.019	$) \times 10^{-3}$	1684
$J/\psi(1S) K^0 \pi^+$	(	1.14 ± 0.11	$) \times 10^{-3}$	1651
$J/\psi(1S) K^+ \pi^+ \pi^-$	(	8.1 ± 1.3	$) \times 10^{-4}$ S=2.5	1612

$J/\psi(1S)K^+K^-K^+$	(3.37 ± 0.29) $\times 10^{-5}$			1252
$\chi_{c0}(3915)K^+,\ \chi_{c0} \to\ p\overline{p}$	< 7.1 $\times 10^{-8}$	CL=95%	–
$J/\psi(1S)K^*(892)^+$	(1.43 ± 0.08) $\times 10^{-3}$			1571
$J/\psi(1S)K(1270)^+$	($1.8\ \pm 0.5$) $\times 10^{-3}$			1402
$J/\psi(1S)K(1400)^+$	< 5 $\times 10^{-4}$	CL=90%	1308
$J/\psi(1S)\eta K^+$	(1.24 ± 0.14) $\times 10^{-4}$			1510
$\chi_{c1-odd}(3872)K^+,$ $\chi_{c1-odd} \to\ J/\psi\eta$	< 3.8 $\times 10^{-6}$	CL=90%	–
$\psi(4160)K^+,\ \psi \to\ J/\psi\eta$	< 8.7 $\times 10^{-7}$	CL=90%	–
$J/\psi(1S)\eta' K^+$	($3.1\ \pm 0.4$) $\times 10^{-5}$			1273
$J/\psi(1S)\phi K^+$	($5.0\ \pm 0.4$) $\times 10^{-5}$			1227
$J/\psi(1S)K_1(1650),\ K_1 \to\ \phi K^+$	($6\ ^{+10}_{-\ 6}$) $\times 10^{-6}$			–
$J/\psi(1S)K^*(1680)^+,\ K^* \to\ \phi K^+$	($3.4\ ^{+1.9}_{-2.2}$) $\times 10^{-6}$			–
$J/\psi(1S)K_2^*(1980),\ K_2^* \to\ \phi K^+$	($1.5\ ^{+0.9}_{-0.5}$) $\times 10^{-6}$			–
$J/\psi(1S)K(1830)^+,$ $K(1830)^+ \to\ \phi K^+$	($1.3\ ^{+1.3}_{-1.1}$) $\times 10^{-6}$			–
$\chi_{c1}(4140)K^+,\ \chi_{c1} \to\ J/\psi(1S)\phi$	($10\ \pm 4$) $\times 10^{-6}$			–
$\chi_{c1}(4274)K^+,\ \chi_{c1} \to\ J/\psi(1S)\phi$	($3.6\ ^{+2.2}_{-1.8}$) $\times 10^{-6}$			–
$\chi_{c0}(4500)K^+,\ \chi_{c0} \to\ J/\psi(1S)\phi$	($3.3\ ^{+2.1}_{-1.7}$) $\times 10^{-6}$			–
$\chi_{c0}(4700)K^+,\ \chi_{c0} \to\ J/\psi(1S)\phi$	($6\ ^{+5}_{-4}$) $\times 10^{-6}$			–
$J/\psi(1S)\omega K^+$	($3.20\ ^{+0.60}_{-0.32}$) $\times 10^{-4}$			1388
$\chi_{c0}(3915)K^+,\ \chi_{c0} \to\ J/\psi\omega$	($3.0\ ^{+0.9}_{-0.7}$) $\times 10^{-5}$			1103
$J/\psi(1S)\pi^+$	(3.92 ± 0.09) $\times 10^{-5}$			1728
$J/\psi(1S)\pi^+\pi^+\pi^+\pi^-\pi^-$	(1.17 ± 0.13) $\times 10^{-5}$			1635
$\psi(2S)\pi^+\pi^+\pi^-$	($1.9\ \pm 0.4$) $\times 10^{-5}$			1304
$J/\psi(1S)\rho^+$	($4.1\ \pm 0.5$) $\times 10^{-5}$	S=1.4	1612
$J/\psi(1S)\pi^+\pi^0$ nonresonant	< 7.3 $\times 10^{-6}$	CL=90%	1717
$J/\psi(1S)a_1(1260)^+$	< 1.2 $\times 10^{-3}$	CL=90%	1415
$J/\psi(1S)p\overline{p}\pi^+$	< 5.0 $\times 10^{-7}$	CL=90%	644
$J/\psi(1S)p\overline{\Lambda}$	(1.46 ± 0.12) $\times 10^{-5}$			568
$J/\psi(1S)\overline{\Sigma}^0 p$	< 1.1 $\times 10^{-5}$	CL=90%	–
$J/\psi(1S)D^+$	< 1.2 $\times 10^{-4}$	CL=90%	871
$J/\psi(1S)\overline{D}^0\pi^+$	< 2.5 $\times 10^{-5}$	CL=90%	665

$\psi(2S)\pi^+$	(	2.44 ± 0.30	) $\times 10^{-5}$		1348
$\psi(2S)K^+$	(	6.24 ± 0.21	) $\times 10^{-4}$		1284
$\psi(2S)K^*(892)^+$	(	6.7 ± 1.4	) $\times 10^{-4}$	S=1.3	1116
$\psi(2S)K^+\pi^+\pi^-$	(	4.3 ± 0.5	) $\times 10^{-4}$		1179
$\psi(2S)\phi(1020)K^+$	(	4.0 ± 0.7	) $\times 10^{-6}$		418
$\psi(3770)K^+$	(	4.3 ± 1.1	) $\times 10^{-4}$		1218
$\psi(3770)K+,\psi \to D^0\overline{D}^0$	(	1.5 ± 0.5	) $\times 10^{-4}$	S=1.4	1218
$\psi(3770)K+,\psi \to D^+D^-$	(	9.4 ± 3.5	) $\times 10^{-5}$		1218
$\psi(3770)K^+, \psi \to p\overline{p}$	<	2	$\times 10^{-7}$	CL=95%	−
$\psi(3770)K^+, \psi \to J/\psi\eta$	<	4.6	$\times 10^{-7}$	CL=90%	−
$\psi(4040)K^+$	(	1.6 ± 0.5	) $\times 10^{-3}$		1002
$\psi(4040)K^+, \psi \to D^+D^-$	(	1.1 ± 0.5	) $\times 10^{-5}$		−
$\psi(4160)K^+$	(	5.1 ± 2.7	) $\times 10^{-4}$		869
$\psi(4160)K^+, \psi \to \overline{D}^0 D^0$	(	8 ± 5	) $\times 10^{-5}$		−
$\psi(4160)K^+, \psi \to D^+D^-$	(	1.5 ± 0.6	) $\times 10^{-5}$		−
$\psi(4415)K^+, \psi \to D^+D^-$	(	2.0 ± 0.8	) $\times 10^{-5}$		−
$\psi(4415)K^+, \psi \to J/\psi\eta$	<	9.6	$\times 10^{-7}$	CL=90%	−
$\chi_{c0}\pi^+, \chi_{c0} \to \pi^+\pi^-$	<	1	$\times 10^{-7}$	CL=90%	1531
$\chi_{c0}\pi^+, \chi_{c0} \to \pi^0\pi^0$	<	5	$\times 10^{-7}$	CL=90%	−
$\chi_{c0}K^+$	(	$1.51 \begin{smallmatrix} +0.15 \\ -0.13 \end{smallmatrix}$	) $\times 10^{-4}$		1478
$\chi_{c0}K^0\pi^+$	(	1.45 ± 0.21	) $\times 10^{-3}$		1439
$\chi_{c0}K^*(892)^+$	<	2.1	$\times 10^{-4}$	CL=90%	1341
$\chi_{c1}(1P)\pi^+$	(	2.2 ± 0.5	) $\times 10^{-5}$		1468
$\chi_{c1}(1P)K^+$	(	4.74 ± 0.22	) $\times 10^{-4}$		1412
$\chi_{c1}(1P)K^*(892)^+$	(	3.0 ± 0.6	) $\times 10^{-4}$	S=1.1	1265
$\chi_{c1}(1P)K^0\pi^+$	(	5.8 ± 0.4	) $\times 10^{-4}$		1370
$\chi_{c1}(1P)K^+\pi^0$	(	3.29 ± 0.35	) $\times 10^{-4}$		1373
$\chi_{c1}(1P)K^+\pi^+\pi^-$	(	3.74 ± 0.30	) $\times 10^{-4}$		1319
$\chi_{c1}(2P)K^+, \chi_{c1}(2P) \to \pi^+\pi^-\chi_{c1}(1P)$	<	1.1	$\times 10^{-5}$	CL=90%	−
$\chi_{c2}\pi^+, \chi_{c2} \to \pi^0\pi^0$	<	7	$\times 10^{-7}$	CL=90%	−
$\chi_{c2}K^+$	(	1.1 ± 0.4	) $\times 10^{-5}$		1379
$\chi_{c2}K^+, \chi_{c2} \to p\overline{p}\pi^+\pi^-$	<	1.9	$\times 10^{-7}$		−
$\chi_{c2}K^*(892)^+$	<	1.2	$\times 10^{-4}$	CL=90%	1228
$\chi_{c2}K^0\pi^+$	(	1.24 ± 0.25	) $\times 10^{-4}$		1336
$\chi_{c2}K^+\pi^0$	<	6.2	$\times 10^{-5}$	CL=90%	1339
$\chi_{c2}K^+\pi^+\pi^-$	(	1.34 ± 0.19	) $\times 10^{-4}$		1284
$\chi_{c2}(3930)K^+, \chi_{c2} \to D^+D^-$	(	1.6 ± 0.6	) $\times 10^{-5}$		−
$\chi_{c2}(3930)\pi^+, \chi_{c2} \to \pi^+\pi^-$	<	1	$\times 10^{-7}$	CL=90%	1437
$h_c(1P)K^+$	(	3.7 ± 1.2	) $\times 10^{-5}$		1401
$h_c(1P)K^+, h_c \to p\overline{p}$	<	6.4	$\times 10^{-8}$	CL=95%	−

K or *K** modes

$K^0 \pi^+$	$(\ 2.39\ \pm\ 0.06\ ) \times 10^{-5}$		2614
$K^+ \pi^0$	$(\ 1.32\ \pm\ 0.04\ ) \times 10^{-5}$		2615
$\eta' K^+$	$(\ 7.04\ \pm\ 0.25\ ) \times 10^{-5}$		2528
$\eta' K^*(892)^+$	$(\ 4.8\ {}^{+\ 1.8}_{-\ 1.6}\ ) \times 10^{-6}$		2472
$\eta' K_0^*(1430)^+$	$(\ 5.2\ \pm\ 2.1\ ) \times 10^{-6}$		–
$\eta' K_2^*(1430)^+$	$(\ 2.8\ \pm\ 0.5\ ) \times 10^{-5}$		2346
ηK^+	$(\ 2.4\ \pm\ 0.4\ ) \times 10^{-6}$	S=1.7	2588
$\eta K^*(892)^+$	$(\ 1.93\ \pm\ 0.16\ ) \times 10^{-5}$		2534
$\eta K_0^*(1430)^+$	$(\ 1.8\ \pm\ 0.4\ ) \times 10^{-5}$		–
$\eta K_2^*(1430)^+$	$(\ 9.1\ \pm\ 3.0\ ) \times 10^{-6}$		2414
$\eta(1295) K^+ \times$ B$(\eta(1295) \to$ $\eta \pi \pi)$	$(\ 2.9\ {}^{+\ 0.8}_{-\ 0.7}\ ) \times 10^{-6}$		2455
$\eta(1405) K^+ \times$ B$(\eta(1405) \to$ $\eta \pi \pi)$	$<\ \ 1.3 \qquad\qquad \times 10^{-6}$	CL=90%	2425
$\eta(1405) K^+ \times$ B$(\eta(1405) \to$ $K^* K)$	$<\ \ 1.2 \qquad\qquad \times 10^{-6}$	CL=90%	2425
$\eta(1475) K^+ \times$ B$(\eta(1475) \to$ $K^* K)$	$(\ 1.38\ {}^{+\ 0.21}_{-\ 0.18}\ ) \times 10^{-5}$		2406
$f_1(1285) K^+$	$<\ \ 2.0 \qquad\qquad \times 10^{-6}$	CL=90%	2458
$f_1(1420) K^+ \times$ B$(f_1(1420) \to$ $\eta \pi \pi)$	$<\ \ 2.9 \qquad\qquad \times 10^{-6}$	CL=90%	2420
$f_1(1420) K^+ \times$ B$(f_1(1420) \to$ $K^* K)$	$<\ \ 4.1 \qquad\qquad \times 10^{-6}$	CL=90%	2420
$\phi(1680) K^+ \times$ B$(\phi(1680) \to$ $K^* K)$	$<\ \ 3.4 \qquad\qquad \times 10^{-6}$	CL=90%	2344
$f_0(1500) K^+$	$(\ 3.7\ \pm\ 2.2\ ) \times 10^{-6}$		2393
ωK^+	$(\ 6.5\ \pm\ 0.4\ ) \times 10^{-6}$		2558
$\omega K^*(892)^+$	$<\ \ 7.4 \qquad\qquad \times 10^{-6}$	CL=90%	2503
$\omega (K\pi)_0^{*+}$	$(\ 2.8\ \pm\ 0.4\ ) \times 10^{-5}$		–
$\omega K_0^*(1430)^+$	$(\ 2.4\ \pm\ 0.5\ ) \times 10^{-5}$		–
$\omega K_2^*(1430)^+$	$(\ 2.1\ \pm\ 0.4\ ) \times 10^{-5}$		2379
$a_0(980)^+ K^0 \times$B$(a_0(980)^+ \to$ $\eta \pi^+)$	$<\ \ 3.9 \qquad\qquad \times 10^{-6}$	CL=90%	–
$a_0(980)^0 K^+ \times$B$(a_0(980)^0 \to$ $\eta \pi^0)$	$<\ \ 2.5 \qquad\qquad \times 10^{-6}$	CL=90%	–
$K^*(892)^0 \pi^+$	$(\ 1.01\ \pm\ 0.08\ ) \times 10^{-5}$		2562
$K^*(892)^+ \pi^0$	$(\ 6.8\ \pm\ 0.9\ ) \times 10^{-6}$		2563
$K^+ \pi^- \pi^+$	$(\ 5.10\ \pm\ 0.29\ ) \times 10^{-5}$		2609
$K^+ \pi^- \pi^+$ nonresonant	$(\ 1.63\ {}^{+\ 0.21}_{-\ 0.15}\ ) \times 10^{-5}$		2609
$\omega(782) K^+$	$(\ 6\ \pm\ 9\ ) \times 10^{-6}$		2558

$K^+ f_0(980) \times$ B$(f_0(980) \to$ $\pi^+\pi^-)$	(	9.4 $^{+\,1.0}_{-\,1.2}$	$) \times 10^{-6}$	2522
$f_2(1270)^0 K^+$	(	1.07 ± 0.27	$) \times 10^{-6}$	–
$f_0(1370)^0 K^+ \times$ B$(f_0(1370)^0 \to \pi^+\pi^-)$	<	1.07	$\times 10^{-5}$ CL=90%	–
$\rho(14500) K^+ \times$ B$(\rho(1450)^0 \to \pi^+\pi^-)$	<	1.17	$\times 10^{-5}$ CL=90%	–
$f'_2(1525) K^+ \times$ B$(f'_2(1525) \to \pi^+\pi^-)$	<	3.4	$\times 10^{-6}$ CL=90%	2394
$K^+ \rho^0$	(	3.7 ± 0.5	$) \times 10^{-6}$	2559
$K_0^*(1430)^0 \pi^+$	(	3.9 $^{+\,0.6}_{-\,0.5}$	$) \times 10^{-5}$ S=1.4	2445
$K_2^*(1430)^0 \pi^+$	(	5.6 $^{+\,2.2}_{-\,1.5}$	$) \times 10^{-6}$	2445
$K^*(1410)^0 \pi^+$	<	4.5	$\times 10^{-5}$ CL=90%	2448
$K^*(1680)^0 \pi^+$	<	1.2	$\times 10^{-5}$ CL=90%	2358
$K^+ \pi^0 \pi^0$	(	1.62 ± 0.19	$) \times 10^{-5}$	2610
$f_0(980) K^+ \times$ B$(f_0 \to \pi^0\pi^0)$	(	2.8 ± 0.8	$) \times 10^{-6}$	2522
$K^- \pi^+ \pi^+$	<	4.6	$\times 10^{-8}$ CL=90%	2609
$K^- \pi^+ \pi^+$ nonresonant	<	5.6	$\times 10^{-5}$ CL=90%	2609
$K_1(1270)^0 \pi^+$	<	4.0	$\times 10^{-5}$ CL=90%	2489
$K_1(1400)^0 \pi^+$	<	3.9	$\times 10^{-5}$ CL=90%	2451
$K^0 \pi^+ \pi^0$	<	6.6	$\times 10^{-5}$ CL=90%	2609
$K_0^*(1430)^+ \pi^0$	(	1.19 $^{+\,0.20}_{-\,0.23}$	$) \times 10^{-5}$	–
$K^0 \rho^+$	(	7.3 $^{+\,1.0}_{-\,1.2}$	$) \times 10^{-6}$	2558
$K^*(892)^+ \pi^+ \pi^-$	(	7.5 ± 1.0	$) \times 10^{-5}$	2557
$K^*(892)^+ \rho^0$	(	4.6 ± 1.1	$) \times 10^{-6}$	2504
$K^*(892)^+ f_0(980)$	(	4.2 ± 0.7	$) \times 10^{-6}$	2466
$a_1^+ K^0$	(	3.5 ± 0.7	$) \times 10^{-5}$	–
$b_1^+ K^0 \times$ B$(b_1^+ \to \omega \pi^+)$	(	9.6 ± 1.9	$) \times 10^{-6}$	–
$K^*(892)^0 \rho^+$	(	9.2 ± 1.5	$) \times 10^{-6}$	2504
$K_1(1400)^+ \rho^0$	<	7.8	$\times 10^{-4}$ CL=90%	2388
$K_2^*(1430)^+ \rho^0$	<	1.5	$\times 10^{-3}$ CL=90%	2381
$b_1^0 K^+ \times$ B$(b_1^0 \to \omega \pi^0)$	(	9.1 ± 2.0	$) \times 10^{-6}$	–
$b_1^+ K^{*0} \times$ B$(b_1^+ \to \omega \pi^+)$	<	5.9	$\times 10^{-6}$ CL=90%	–
$b_1^0 K^{*+} \times$ B$(b_1^0 \to \omega \pi^0)$	<	6.7	$\times 10^{-6}$ CL=90%	–
$K^+ \overline{K}^0$	(	1.32 ± 0.17	$) \times 10^{-6}$ S=1.2	2593
$\overline{K}^0 K^+ \pi^0$	<	2.4	$\times 10^{-5}$ CL=90%	2578
$K^+ K_S^0 K_S^0$	(	1.05 ± 0.04	$) \times 10^{-5}$	2521
$f_0(980) K^+, \ f_0 \to K_S^0 K_S^0$	(	1.47 ± 0.33	$) \times 10^{-5}$	–
$f_0(1710) K^+, \ f_0 \to K_S^0 K_S^0$	(	4.8 $^{+\,4.0}_{-\,2.6}$	$) \times 10^{-7}$	–
$K^+ K_S^0 K_S^0$ nonresonant	(	2.0 ± 0.4	$) \times 10^{-5}$	2521

$K_S^0 K_S^0 \pi^+$	$<$	5.1	$\times 10^{-7}$	CL=90%	2577
$K^+ K^- \pi^+$	(	5.2 $\pm$ 0.4	$) \times 10^{-6}$		2578
$K^+ K^- \pi^+$ nonresonant	(	1.68 $\pm$ 0.26	$) \times 10^{-6}$		2578
$K^+ \overline{K}^*(892)^0$	(	5.9 $\pm$ 0.8	$) \times 10^{-7}$		2540
$K^+ \overline{K}_0^*(1430)^0$	(	3.8 $\pm$ 1.3	$) \times 10^{-7}$		2421
$\pi^+ (K^+ K^-)_{S-wave}$	(	8.5 $\pm$ 0.9	$) \times 10^{-7}$		2578
$\pi^+ K^+ K^-$, $m_{K^+ K^-} < 1.1$ GeV	(	5.4 $\pm$ 0.5	$) \times 10^{-6}$		–
$K^+ K^+ \pi^-$	$<$	1.1	$\times 10^{-8}$	CL=90%	2578
$K^+ K^+ \pi^-$ nonresonant	$<$	8.79	$\times 10^{-5}$	CL=90%	2578
$f_2'(1525) K^+$	(	1.8 $\pm$ 0.5	$) \times 10^{-6}$	S=1.1	2394
$K^{*+} \pi^+ K^-$	$<$	1.18	$\times 10^{-5}$	CL=90%	2524
$K^*(892)^+ K^*(892)^0$	(	9.1 $\pm$ 2.9	$) \times 10^{-7}$		2485
$K^{*+} K^+ \pi^-$	$<$	6.1	$\times 10^{-6}$	CL=90%	2524
$K^+ K^- K^+$	(	3.40 $\pm$ 0.14	$) \times 10^{-5}$	S=1.4	2523
$K^+ \phi$	(	8.8 $^{+\,0.7}_{-\,0.6}$	$) \times 10^{-6}$	S=1.1	2516
$f_0(980) K^+ \times$ B$(f_0(980) \to K^+ K^-)$	(	9.4 $\pm$ 3.2	$) \times 10^{-6}$		2522
$a_2(1320) K^+ \times$ B$(a_2(1320) \to K^+ K^-)$	$<$	1.1	$\times 10^{-6}$	CL=90%	2449
$X_0(1550) K^+ \times$ B$(X_0(1550) \to K^+ K^-)$	(	4.3 $\pm$ 0.7	$) \times 10^{-6}$		–
$\phi(1680) K^+ \times$ B$(\phi(1680) \to K^+ K^-)$	$<$	8	$\times 10^{-7}$	CL=90%	2344
$f_0(1710) K^+ \times$ B$(f_0(1710) \to K^+ K^-)$	(	1.1 $\pm$ 0.6	$) \times 10^{-6}$		2327
$K^+ K^- K^+$ nonresonant	(	2.38 $^{+\,0.28}_{-\,0.50}$	$) \times 10^{-5}$		2523
$K^*(892)^+ K^+ K^-$	(	3.6 $\pm$ 0.5	$) \times 10^{-5}$		2466
$K^*(892)^+ \phi$	(	10.0 $\pm$ 2.0	$) \times 10^{-6}$	S=1.7	2460
$K^0 K^+ K^- \pi^+$	(	3.40 $\pm$ 0.33	$) \times 10^{-4}$		2494
$J/\psi K^+$, $J/\psi \to K^0 K^- \pi^+$	(	5.4 $\pm$ 1.2	$) \times 10^{-6}$		–
$\chi_{c1} K^+$, $\chi_{c1} \to K^0 K^- \pi^+$	(	2.25 $\pm$ 0.25	$) \times 10^{-6}$		–
$\eta_c K^+$, $\eta_c \to K^0 K^- \pi^+$	(	2.83 $\pm$ 0.30	$) \times 10^{-5}$		–
$\eta_c(2S) K^+$, $\eta_c(2S) \to K^0 K^- \pi^+$	(	3.3 $\pm$ 0.4	$) \times 10^{-6}$		–
$K^0 K^+ K^+ \pi^-$	(	2.80 $\pm$ 0.30	$) \times 10^{-4}$		2494
$J/\psi K^+$, $J/\psi \to K^0 K^+ \pi^-$	(	5.4 $\pm$ 1.3	$) \times 10^{-6}$		–
$\chi_{c1} K^+$, $\chi_{c1} \to K^0 K^+ \pi^-$	(	2.06 $\pm$ 0.32	$) \times 10^{-6}$		–
$\eta_c K^+$, $\eta_c \to K^0 K^+ \pi^-$	(	3.00 $\pm$ 0.34	$) \times 10^{-5}$		–
$\eta_c(2S) K^+$, $\eta_c(2S) \to K^0 K^+ \pi^-$	(	3.1 $\pm$ 0.6	$) \times 10^{-6}$		–
$\phi(K\pi)_0^{*+}$	(	8.3 $\pm$ 1.6	$) \times 10^{-6}$		–
$\phi K_1(1270)^+$	(	6.1 $\pm$ 1.9	$) \times 10^{-6}$		2380

$\phi K_1(1400)^+$	<	3.2	$\times 10^{-6}$	CL=90%	2339
$\phi K^*(1410)^+$	<	4.3	$\times 10^{-6}$	CL=90%	–
$\phi K_0^*(1430)^+$	(	7.0 $\pm$ 1.6	$) \times 10^{-6}$		–
$\phi K_2^*(1430)^+$	(	8.4 $\pm$ 2.1	$) \times 10^{-6}$		2332
$\phi K_2^*(1770)^+$	<	1.50	$\times 10^{-5}$	CL=90%	–
$\phi K_2^*(1820)^+$	<	1.63	$\times 10^{-5}$	CL=90%	–
$a_1^+ K^{*0}$	<	3.6	$\times 10^{-6}$	CL=90%	–
$K^+ \phi \phi$	(	4.2 $\pm$ 0.8	$) \times 10^{-6}$	S=2.2	2306
$\eta' \eta' K^+$	<	2.5	$\times 10^{-5}$	CL=90%	2339
$\omega \phi K^+$	<	1.9	$\times 10^{-6}$	CL=90%	2374
$\quad X(1812) K^+ \times$ B$(X \to \omega \phi)$	<	3.2	$\times 10^{-7}$	CL=90%	–
$K^*(892)^+ \gamma$	(	3.92 $\pm$ 0.22	$) \times 10^{-5}$	S=1.7	2564
$K_1(1270)^+ \gamma$	(	4.4 $^{+\ 0.7}_{-\ 0.6}$	$) \times 10^{-5}$		2491
$\eta K^+ \gamma$	(	7.9 $\pm$ 0.9	$) \times 10^{-6}$		2588
$\eta' K^+ \gamma$	(	2.9 $^{+\ 1.0}_{-\ 0.9}$	$) \times 10^{-6}$		2528
$\phi K^+ \gamma$	(	2.7 $\pm$ 0.4	$) \times 10^{-6}$	S=1.2	2516
$K^+ \pi^- \pi^+ \gamma$	(	2.58 $\pm$ 0.15	$) \times 10^{-5}$	S=1.3	2609
$\quad K^*(892)^0 \pi^+ \gamma$	(	2.33 $\pm$ 0.12	$) \times 10^{-5}$		2562
$\quad K^+ \rho^0 \gamma$	(	8.2 $\pm$ 0.9	$) \times 10^{-6}$		2559
$\quad (K^+ \pi^-)_{NR} \pi^+ \gamma$	(	9.9 $^{+\ 1.7}_{-\ 2.0}$	$) \times 10^{-6}$		2609
$K^0 \pi^+ \pi^0 \gamma$	(	4.6 $\pm$ 0.5	$) \times 10^{-5}$		2609
$K_1(1400)^+ \gamma$	(	10 $^{+\ 5}_{-\ 4}$	$) \times 10^{-6}$		2453
$K^*(1410)^+ \gamma$	(	2.7 $^{+\ 0.8}_{-\ 0.6}$	$) \times 10^{-5}$		–
$K_0^*(1430)^0 \pi^+ \gamma$	(	1.32 $^{+\ 0.26}_{-\ 0.32}$	$) \times 10^{-6}$		2445
$K_2^*(1430)^+ \gamma$	(	1.4 $\pm$ 0.4	$) \times 10^{-5}$		2447
$K^*(1680)^+ \gamma$	(	6.7 $^{+\ 1.7}_{-\ 1.4}$	$) \times 10^{-5}$		2360
$K_3^*(1780)^+ \gamma$	<	3.9	$\times 10^{-5}$	CL=90%	2340
$K_4^*(2045)^+ \gamma$	<	9.9	$\times 10^{-3}$	CL=90%	2242

Light unflavored meson modes

$\rho^+ \gamma$	(	9.8 $\pm$ 2.5	$) \times 10^{-7}$		2583
$\pi^+ \pi^0$	(	5.31 $\pm$ 0.26	$) \times 10^{-6}$		2636
$\pi^+ \pi^+ \pi^-$	(	1.52 $\pm$ 0.14	$) \times 10^{-5}$		2630
$\quad \rho^0 \pi^+$	(	8.3 $\pm$ 1.2	$) \times 10^{-6}$		2581
$\quad \pi^+ f_0(980), \ f_0 \to \pi^+ \pi^-$	<	1.5	$\times 10^{-6}$	CL=90%	2545
$\quad \pi^+ f_2(1270)$	(	2.2 $^{+\ 0.7}_{-\ 0.4}$	$) \times 10^{-6}$		2484
$\quad \rho(1450)^0 \pi^+, \ \rho^0 \to \pi^+ \pi^-$	(	1.4 $^{+\ 0.6}_{-\ 0.9}$	$) \times 10^{-6}$		2434
$\quad \rho(1450)^0 \pi^+, \ \rho^0 \to K^+ K^-$	(	1.60 $\pm$ 0.14	$) \times 10^{-6}$		–

$f_0(1370)\pi^+$, $f_0 \to \pi^+\pi^-$	< 4.0	$\times 10^{-6}$ CL=90%	2460
$f_0(1370)\pi^+$, $f_0 \to \pi^0\pi^0$	< 1.1	$\times 10^{-6}$ CL=90%	–
$f_0(500)\pi^+$, $f_0 \to \pi^+\pi^-$	< 4.1	$\times 10^{-6}$ CL=90%	–
$\pi^+\pi^-\pi^+$ nonresonant	(5.3 $^{+\,1.5}_{-\,1.1}$) $\times 10^{-6}$		2630
$\pi^+\pi^0\pi^0$	(1.90 $\pm$ 0.21) $\times 10^{-5}$		2631
$\rho^+\pi^0$	(1.06 $^{+\,0.12}_{-\,0.13}$) $\times 10^{-5}$		2581
$\rho(1450)^+\pi^0$, $\rho^+ \to \pi^+\pi^0$	(1.2 $\pm$ 0.6) $\times 10^{-6}$		–
$\pi^+\pi^0\pi^0$ nonresonant	< 6	$\times 10^{-7}$ CL=90%	2631
$X\,pi+,X \to \pi^0\pi^0$	(6.9 $\pm$ 1.1) $\times 10^{-6}$		–
$\pi^+\pi^-\pi^+\pi^0$	< 4.0	$\times 10^{-3}$ CL=90%	2622
$\rho^+\rho^0$	(2.40 $\pm$ 0.19) $\times 10^{-5}$		2523
$\rho^+ f_0(980)$, $f_0 \to \pi^+\pi^-$	< 2.0	$\times 10^{-6}$ CL=90%	2486
$a_1(1260)^+\pi^0$	(2.6 $\pm$ 0.7) $\times 10^{-5}$		2494
$a_1(1260)^0\pi^+$	(2.0 $\pm$ 0.6) $\times 10^{-5}$		2494
$\omega\pi^+$	(6.9 $\pm$ 0.5) $\times 10^{-6}$		2580
$\omega\rho^+$	(1.59 $\pm$ 0.21) $\times 10^{-5}$		2522
$\eta\pi^+$	(4.02 $\pm$ 0.27) $\times 10^{-6}$		2609
$\eta\rho^+$	(7.0 $\pm$ 2.9) $\times 10^{-6}$	S=2.8	2553
$\eta'\pi^+$	(2.7 $\pm$ 0.9) $\times 10^{-6}$	S=1.9	2551
$\eta'\rho^+$	(9.7 $\pm$ 2.2) $\times 10^{-6}$		2492
$\phi\pi^+$	(3.2 $\pm$ 1.5) $\times 10^{-8}$		2539
$\phi\rho^+$	< 3.0	$\times 10^{-6}$ CL=90%	2480
$a_0(980)^0\pi^+$, $a_0^0 \to \eta\pi^0$	< 5.8	$\times 10^{-6}$ CL=90%	–
$a_0(980)^+\pi^0$, $a_0^+ \to \eta\pi^+$	< 1.4	$\times 10^{-6}$ CL=90%	–
$\pi^+\pi^+\pi^+\pi^-\pi^-$	< 8.6	$\times 10^{-4}$ CL=90%	2608
$\rho^0 a_1(1260)^+$	< 6.2	$\times 10^{-4}$ CL=90%	2433
$\rho^0 a_2(1320)^+$	< 7.2	$\times 10^{-4}$ CL=90%	2410
$b_1^0\pi^+$, $b_1^0 \to \omega\pi^0$	(6.7 $\pm$ 2.0) $\times 10^{-6}$		–
$b_1^+\pi^0$, $b_1^+ \to \omega\pi^+$	< 3.3	$\times 10^{-6}$ CL=90%	–
$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$	< 6.3	$\times 10^{-3}$ CL=90%	2592
$b_1^+\rho^0$, $b_1^+ \to \omega\pi^+$	< 5.2	$\times 10^{-6}$ CL=90%	–
$a_1(1260)^+ a_1(1260)^0$	< 1.3	% CL=90%	2336
$b_1^0\rho^+$, $b_1^0 \to \omega\pi^0$	< 3.3	$\times 10^{-6}$ CL=90%	–

Charged particle ($h^\pm$) modes

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

$h^+\pi^0$	(1.6 $^{+\,0.7}_{-\,0.6}$) $\times 10^{-5}$		2636
ωh^+	(1.38 $^{+\,0.27}_{-\,0.24}$) $\times 10^{-5}$		2580
$h^+ X^0$ (Familon)	< 4.9	$\times 10^{-5}$ CL=90%	–
$K^+ X^0$, $X^0 \to \mu^+\mu^-$	< 1	$\times 10^{-7}$ CL=95%	–

Baryon modes

$p\overline{p}\pi^+$		(1.62 $\pm$ 0.20) $\times 10^{-6}$			2439
$p\overline{p}\pi^+$ nonresonant		< 5.3 $\times 10^{-5}$	CL=90%		2439
$p\overline{p}\pi^+\pi^0$		(4.6 $\pm$ 1.3) $\times 10^{-6}$			2407
$p\overline{p}K^+$		(5.9 $\pm$ 0.5) $\times 10^{-6}$	S=1.5		2348
$\Theta(1710)^{++}\overline{p}$, $\Theta^{++} \to$ pK^+	[g] < 9.1 $\times 10^{-8}$	CL=90%			−
$f_J(2220)K^+$, $f_J \to p\overline{p}$	[g] < 4.1 $\times 10^{-7}$	CL=90%			2135
$p\overline{n}\pi^0$		< 6.3 $\times 10^{-6}$	CL=90%		2440
$p\overline{\Lambda}(1520)$		(3.1 $\pm$ 0.6) $\times 10^{-7}$			2322
$p\overline{p}K^+$ nonresonant		< 8.9 $\times 10^{-5}$	CL=90%		2348
$p\overline{p}K^*(892)^+$		(3.6 $^{+\ 0.8}_{-\ 0.7}$) $\times 10^{-6}$			2215
$f_J(2220)K^{*+}$, $f_J \to p\overline{p}$		< 7.7 $\times 10^{-7}$	CL=90%		2059
$p\overline{\Lambda}$		(2.4 $^{+\ 1.0}_{-\ 0.9}$) $\times 10^{-7}$			2430
$p\overline{\Lambda}\gamma$		(2.4 $^{+\ 0.5}_{-\ 0.4}$) $\times 10^{-6}$			2430
$p\overline{\Lambda}\pi^0$		(3.0 $^{+\ 0.7}_{-\ 0.6}$) $\times 10^{-6}$			2402
$p\overline{\Sigma}(1385)^0$		< 4.7 $\times 10^{-7}$	CL=90%		2362
$\Delta^+\overline{\Lambda}$		< 8.2 $\times 10^{-7}$	CL=90%		−
$p\overline{\Sigma}\gamma$		< 4.6 $\times 10^{-6}$	CL=90%		2413
$p\overline{\Lambda}\pi^+\pi^-$		(1.13 $\pm$ 0.13) $\times 10^{-5}$			2368
$p\overline{\Lambda}\pi^+\pi^-$ nonresonant		(5.9 $\pm$ 1.1) $\times 10^{-6}$			2368
$p\overline{\Lambda}\rho^0$, $\rho^0 \to \pi^+\pi^-$		(4.8 $\pm$ 0.9) $\times 10^{-6}$			2214
$p\overline{\Lambda}f_2(1270)$, $f_2 \to \pi^+\pi^-$		(2.0 $\pm$ 0.8) $\times 10^{-6}$			2026
$p\overline{\Lambda}K^+K^-$		(4.1 $\pm$ 0.7) $\times 10^{-6}$			2132
$p\overline{\Lambda}\phi$		(8.0 $\pm$ 2.2) $\times 10^{-7}$			2119
$\overline{p}\Lambda K^+K^-$		(3.7 $\pm$ 0.6) $\times 10^{-6}$			2132
$\Lambda\overline{\Lambda}\pi^+$		< 9.4 $\times 10^{-7}$	CL=90%		2358
$\Lambda\overline{\Lambda}K^+$		(3.4 $\pm$ 0.6) $\times 10^{-6}$			2251
$\Lambda\overline{\Lambda}K^{*+}$		(2.2 $^{+\ 1.2}_{-\ 0.9}$) $\times 10^{-6}$			2098
$\Lambda(1520)\overline{\Lambda}K^+$		(2.2 $\pm$ 0.7) $\times 10^{-6}$			2126
$\Lambda\overline{\Lambda}(1520)K^+$		< 2.08 $\times 10^{-6}$			2126
$\overline{\Delta}^0 p$		< 1.38 $\times 10^{-6}$	CL=90%		2403
$\Delta^{++}\overline{p}$		< 1.4 $\times 10^{-7}$	CL=90%		2403
$D^+p\overline{p}$		< 1.5 $\times 10^{-5}$	CL=90%		1860
$D^*(2010)^+p\overline{p}$		< 1.5 $\times 10^{-5}$	CL=90%		1786
$\overline{D}^0 p\overline{p}\pi^+$		(3.72 $\pm$ 0.27) $\times 10^{-4}$			1789
$\overline{D}^{*0} p\overline{p}\pi^+$		(3.73 $\pm$ 0.32) $\times 10^{-4}$			1709
$D^- p\overline{p}\pi^+\pi^-$		(1.66 $\pm$ 0.30) $\times 10^{-4}$			1705
$D^{*-} p\overline{p}\pi^+\pi^-$		(1.86 $\pm$ 0.25) $\times 10^{-4}$			1621
$p\overline{\Lambda}^0\overline{D}^0$		(1.43 $\pm$ 0.32) $\times 10^{-5}$			−
$p\overline{\Lambda}^0\overline{D}^*(2007)^0$		< 5 $\times 10^{-5}$	CL=90%		−

$\overline{\Lambda}_c^- p \pi^+$		(	2.3	$\pm$ 0.4	) $\times 10^{-4}$	S=2.4	1980
$\overline{\Lambda}_c^- \Delta(1232)^{++}$		<	1.9		$\times 10^{-5}$	CL=90%	1928
$\overline{\Lambda}_c^- \Delta_X(1600)^{++}$		(	4.7	$\pm$ 1.0	) $\times 10^{-5}$		–
$\overline{\Lambda}_c^- \Delta_X(2420)^{++}$		(	3.8	$\pm$ 0.8	) $\times 10^{-5}$		–
$(\overline{\Lambda}_c^- p)_s \pi^+$	[h]	(	3.1	$\pm$ 0.7	) $\times 10^{-5}$		–
$\overline{\Sigma}_c(2520)^0 p$		<	3		$\times 10^{-6}$	CL=90%	1904
$\overline{\Sigma}_c(2800)^0 p$		(	2.7	$\pm$ 0.9	) $\times 10^{-5}$		–
$\overline{\Lambda}_c^- p \pi^+ \pi^0$		(	1.8	$\pm$ 0.6	) $\times 10^{-3}$		1935
$\overline{\Lambda}_c^- p \pi^+ \pi^+ \pi^-$		(	2.2	$\pm$ 0.7	) $\times 10^{-3}$		1880
$\overline{\Lambda}_c^- p \pi^+ \pi^+ \pi^- \pi^0$		<	1.34		%	CL=90%	1823
$\Lambda_c^+ \Lambda_c^- K^+$		(	4.9	$\pm$ 0.7	) $\times 10^{-4}$		739
$\Xi_c(2930)\Lambda_c^+, \ \Xi_c \to \ K^+ \Lambda_c^-$		(	1.7	$\pm$ 0.5	) $\times 10^{-4}$		–
$\overline{\Sigma}_c(2455)^0 p$		(	3.0	$\pm$ 0.7	) $\times 10^{-5}$		1938
$\overline{\Sigma}_c(2455)^0 p \pi^0$		(	3.5	$\pm$ 1.1	) $\times 10^{-4}$		1896
$\overline{\Sigma}_c(2455)^0 p \pi^- \pi^+$		(	3.5	$\pm$ 1.1	) $\times 10^{-4}$		1845
$\overline{\Sigma}_c(2455)^{--} p \pi^+ \pi^+$		(	2.38	$\pm$ 0.19	) $\times 10^{-4}$		1845
$\overline{\Lambda}_c(2593)^- / \overline{\Lambda}_c(2625)^- p \pi^+$		<	1.9		$\times 10^{-4}$	CL=90%	–
$\overline{\Xi}_c^0 \Lambda_c^+$		(	9.5	$\pm$ 2.3	) $\times 10^{-4}$		1144
$\overline{\Xi}_c^0 \Lambda_c^+, \ \overline{\Xi}_c^0 \to \ \overline{\Xi}^+ \pi^-$		(	1.76	$\pm$ 0.29	) $\times 10^{-5}$		1144
$\overline{\Xi}_c^0 \Lambda_c^+, \ \overline{\Xi}_c^0 \to \ \Lambda K^+ \pi^-$		(	1.14	$\pm$ 0.26	) $\times 10^{-5}$		1144
$\overline{\Xi}_c^0 \Lambda_c^+, \ \overline{\Xi}_c^0 \to \ p K^- K^- \pi^+$		(	5.5	$\pm$ 1.9	) $\times 10^{-6}$		–
$\Lambda_c^+ \overline{\Xi}_c^{\prime 0}$		<	6.5		$\times 10^{-4}$	CL=90%	1023
$\Lambda_c^+ \overline{\Xi}_c(2645)^0$		<	7.9		$\times 10^{-4}$	CL=90%	–
$\Lambda_c^+ \overline{\Xi}_c(2790)^0$		(	1.1	$\pm$ 0.4	) $\times 10^{-3}$		–

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

$\pi^+ \ell^+ \ell^-$	B1	[a]	<	4.9		$\times 10^{-8}$	CL=90%	2638
$\pi^+ e^+ e^-$	B1		<	8.0		$\times 10^{-8}$	CL=90%	2638
$\pi^+ \mu^+ \mu^-$	B1		(	1.78	$\pm$ 0.23	) $\times 10^{-8}$		2634
$\pi^+ \nu \overline{\nu}$	B1		<	1.4		$\times 10^{-5}$	CL=90%	2638
$K^+ \ell^+ \ell^-$	B1	[a]	(	4.7	$\pm$ 0.5	) $\times 10^{-7}$	S=2.3	2617
$K^+ e^+ e^-$	B1		(	5.6	$\pm$ 0.6	) $\times 10^{-7}$		2617
$K^+ \mu^+ \mu^-$	B1		(	4.53	$\pm$ 0.35	) $\times 10^{-7}$	S=1.8	2612
$K^+ \mu^+ \mu^-$ nonresonant	B1		(	4.37	$\pm$ 0.27	) $\times 10^{-7}$		2612
$K^+ \tau^+ \tau^-$	B1		<	2.25		$\times 10^{-3}$	CL=90%	1687
$K^+ \overline{\nu} \nu$	B1		<	1.6		$\times 10^{-5}$	CL=90%	2617
$\rho^+ \nu \overline{\nu}$	B1		<	3.0		$\times 10^{-5}$	CL=90%	2583
$K^*(892)^+ \ell^+ \ell^-$	B1	[a]	(	1.01	$\pm$ 0.11	) $\times 10^{-6}$	S=1.1	2564
$K^*(892)^+ e^+ e^-$	B1		(	1.55	$^{+\,0.40}_{-\,0.31}$	) $\times 10^{-6}$		2564
$K^*(892)^+ \mu^+ \mu^-$	B1		(	9.6	$\pm$ 1.0	) $\times 10^{-7}$		2560
$K^*(892)^+ \nu \overline{\nu}$	B1		<	4.0		$\times 10^{-5}$	CL=90%	2564

$K^+\pi^+\pi^-\mu^+\mu^-$	B1	(	4.3	$\pm$ 0.4	) $\times 10^{-7}$	2593
$\phi K^+\mu^+\mu^-$	B1	(	7.9	$^{+\ 2.1}_{-\ 1.7}$	) $\times 10^{-8}$	2490
$\overline{\Lambda}p\nu\overline{\nu}$	B1	<	3.0		$\times 10^{-5}$ CL=90%	2430
$\pi^+e^+\mu^-$	LF	<	6.4		$\times 10^{-3}$ CL=90%	2637
$\pi^+e^-\mu^+$	LF	<	6.4		$\times 10^{-3}$ CL=90%	2637
$\pi^+e^\pm\mu^\mp$	LF	<	1.7		$\times 10^{-7}$ CL=90%	2637
$\pi^+e^+\tau^-$	LF	<	7.4		$\times 10^{-5}$ CL=90%	2338
$\pi^+e^-\tau^+$	LF	<	2.0		$\times 10^{-5}$ CL=90%	2338
$\pi^+e^\pm\tau^\mp$	LF	<	7.5		$\times 10^{-5}$ CL=90%	2338
$\pi^+\mu^+\tau^-$	LF	<	6.2		$\times 10^{-5}$ CL=90%	2334
$\pi^+\mu^-\tau^+$	LF	<	4.5		$\times 10^{-5}$ CL=90%	2334
$\pi^+\mu^\pm\tau^\mp$	LF	<	7.2		$\times 10^{-5}$ CL=90%	2334
$K^+e^+\mu^-$	LF	<	7.0		$\times 10^{-9}$ CL=90%	2616
$K^+e^-\mu^+$	LF	<	6.4		$\times 10^{-9}$ CL=90%	2616
$K^+e^\pm\mu^\mp$	LF	<	9.1		$\times 10^{-8}$ CL=90%	2616
$K^+e^+\tau^-$	LF	<	1.53		$\times 10^{-5}$ CL=90%	2312
$K^+e^-\tau^+$	LF	<	1.5		$\times 10^{-5}$ CL=90%	2312
$K^+e^\pm\tau^\mp$	LF	<	3.0		$\times 10^{-5}$ CL=90%	2312
$K^+\mu^+\tau^-$	LF	<	2.45		$\times 10^{-5}$ CL=90%	2298
$K^+\mu^-\tau^+$	LF	<	5.9		$\times 10^{-6}$ CL=90%	2298
$K^+\mu^\pm\tau^\mp$	LF	<	4.8		$\times 10^{-5}$ CL=90%	2298
$K^*(892)^+e^+\mu^-$	LF	<	1.3		$\times 10^{-6}$ CL=90%	2563
$K^*(892)^+e^-\mu^+$	LF	<	9.9		$\times 10^{-7}$ CL=90%	2563
$K^*(892)^+e^\pm\mu^\mp$	LF	<	1.4		$\times 10^{-6}$ CL=90%	2563
$\pi^-e^+e^+$	L	<	2.3		$\times 10^{-8}$ CL=90%	2638
$\pi^-\mu^+\mu^+$	L	<	4.0		$\times 10^{-9}$ CL=95%	2634
$\pi^-e^+\mu^+$	L	<	1.5		$\times 10^{-7}$ CL=90%	2637
$\rho^-e^+e^+$	L	<	1.7		$\times 10^{-7}$ CL=90%	2583
$\rho^-\mu^+\mu^+$	L	<	4.2		$\times 10^{-7}$ CL=90%	2578
$\rho^-e^+\mu^+$	L	<	4.7		$\times 10^{-7}$ CL=90%	2582
$K^-e^+e^+$	L	<	3.0		$\times 10^{-8}$ CL=90%	2617
$K^-\mu^+\mu^+$	L	<	4.1		$\times 10^{-8}$ CL=90%	2612
$K^-e^+\mu^+$	L	<	1.6		$\times 10^{-7}$ CL=90%	2616
$K^*(892)^-e^+e^+$	L	<	4.0		$\times 10^{-7}$ CL=90%	2564
$K^*(892)^-\mu^+\mu^+$	L	<	5.9		$\times 10^{-7}$ CL=90%	2560
$K^*(892)^-e^+\mu^+$	L	<	3.0		$\times 10^{-7}$ CL=90%	2563
$D^-e^+e^+$	L	<	2.6		$\times 10^{-6}$ CL=90%	2309
$D^-e^+\mu^+$	L	<	1.8		$\times 10^{-6}$ CL=90%	2307
$D^-\mu^+\mu^+$	L	<	6.9		$\times 10^{-7}$ CL=95%	2303
$D^{*-}\mu^+\mu^+$	L	<	2.4		$\times 10^{-6}$ CL=95%	2251
$D_s^-\mu^+\mu^+$	L	<	5.8		$\times 10^{-7}$ CL=95%	2267
$\overline{D}^0\pi^-\mu^+\mu^+$	L	<	1.5		$\times 10^{-6}$ CL=95%	2295
$\Lambda^0\mu^+$	L,B	<	6		$\times 10^{-8}$ CL=90%	–

$\Lambda^0 e^+$	L,B	$<$	3.2	$\times 10^{-8}$ CL=90%	–
$\overline{\Lambda}^0 \mu^+$	L,B	$<$	6	$\times 10^{-8}$ CL=90%	–
$\overline{\Lambda}^0 e^+$	L,B	$<$	8	$\times 10^{-8}$ CL=90%	–

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

I, *J*, *P* need confirmation. Quantum numbers shown are quark-model predictions.

Mass $m_{B^0} = 5279.72 \pm 0.08$ MeV

$m_{B^0} - m_{B^\pm} = 0.31 \pm 0.05$ MeV

Mean life $\tau_{B^0} = (1.517 \pm 0.004) \times 10^{-12}$ s

$\quad c\tau = 454.8\ \mu$m

$\tau_{B^+}/\tau_{B^0} = 1.076 \pm 0.004$ (direct measurements)

B^0-$\overline{B}^0$ mixing parameters

χ_d (B^0-$\overline{B}^0$ mixing probability) $= 0.1860 \pm 0.0011$

$\Delta m_{B^0} = m_{B_H^0} - m_{B_L^0} = (0.5069 \pm 0.0019) \times 10^{12}\ \hbar\ \mathrm{s}^{-1}$

$\qquad\qquad\qquad = (3.336 \pm 0.013) \times 10^{-10}$ MeV

$x_d = \Delta m_{B^0}/\Gamma_{B^0} = 0.7697 \pm 0.0035$

$\mathrm{Re}(\lambda_{CP} / |\lambda_{CP}|)\ \mathrm{Re}(z) = 0.047 \pm 0.022$

$\Delta\Gamma\ \mathrm{Re}(z) = -0.007 \pm 0.004$ ps^{-1}

$\mathrm{Re}(z) = (-4 \pm 4) \times 10^{-2}$ (S = 1.4)

$\mathrm{Im}(z) = (-0.8 \pm 0.4) \times 10^{-2}$

CP violation parameters

$\mathrm{Re}(\epsilon_{B^0})/(1+|\epsilon_{B^0}|^2) = (-0.5 \pm 0.4) \times 10^{-3}$

$A_{T/CP}(B^0 \leftrightarrow \overline{B}^0) = 0.005 \pm 0.018$

$A_{CP}(B^0 \to D^*(2010)^+ D^-) = 0.013 \pm 0.014$

$A_{CP}(B^0 \to \overline{D}^0 \pi^0) = (0.4 \pm 2.4) \times 10^{-2}$

$A_{CP}(B^0 \to [K^+ K^-]_D K^*(892)^0) = -0.05 \pm 0.10$

$A_{CP}(B^0 \to [K^+ \pi^-]_D K^*(892)^0) = 0.047 \pm 0.029$

$A_{CP}(B^0 \to [K^+ \pi^- \pi^+ \pi^-]_D K^*(892)^0) = 0.037 \pm 0.034$

$A_{CP}(B^0 \to [K^- \pi^+]_D K^*(892)^0) = 0.19 \pm 0.19$

$A_{CP}(B^0 \to [K^- \pi^+ \pi^+ \pi^-]_D K^*(892)^0) = -0.01 \pm 0.24$

$R_d^+ = \Gamma(B^0 \to [\pi^+ K^-]_D K^{*0}) / \Gamma(B^0 \to [\pi^- K^+]_D K^{*0}) = 0.064 \pm 0.021$

$R_d^- = \Gamma(\overline{B}^0 \to [\pi^- K^+]_D K^{*0}) / \Gamma(\overline{B}^0 \to [\pi^+ K^-]_D K^{*0}) = 0.095 \pm 0.021$

$A_{CP}(B^0 \to [\pi^+ \pi^-]_D K^*(892)^0) = -0.18 \pm 0.14$

$A_{CP}(B^0 \to [\pi^+ \pi^- \pi^+ \pi^-]_D K^*(892)^0) = -0.03 \pm 0.15$

$R_d^+ = \Gamma(B^0 \to [\pi^+ K^- \pi^+ \pi^-]_D K^{*0}) / \Gamma(B^0 \to [\pi^- K^+ \pi^+ \pi^-]_D K^{*0}) = 0.074 \pm 0.026$

$R_d^- = \Gamma(\overline{B}^0 \to [\pi^- K^+ \pi^+ \pi^-]_D K^{*0}) / \Gamma(\overline{B}^0 \to [\pi^+ K^- \pi^+ \pi^-]_D K^{*0}) = 0.072 \pm 0.025$

$\boldsymbol{A_{CP}(B^0 \to K^+ \pi^-)} = -0.0831 \pm 0.0031$

$A_{CP}(B^0 \to \eta' K^*(892)^0) = -0.07 \pm 0.18$

$A_{CP}(B^0 \to \eta' K_0^*(1430)^0) = -0.19 \pm 0.17$

$A_{CP}(B^0 \to \eta' K_2^*(1430)^0) = 0.14 \pm 0.18$

$\boldsymbol{A_{CP}(B^0 \to \eta K^*(892)^0)} = 0.19 \pm 0.05$

$A_{CP}(B^0 \to \eta K_0^*(1430)^0) = 0.06 \pm 0.13$

$A_{CP}(B^0 \to \eta K_2^*(1430)^0) = -0.07 \pm 0.19$

$A_{CP}(B^0 \to b_1 K^+) = -0.07 \pm 0.12$

$A_{CP}(B^0 \to \omega K^{*0}) = 0.45 \pm 0.25$

$A_{CP}(B^0 \to \omega (K\pi)_0^{*0}) = -0.07 \pm 0.09$

$A_{CP}(B^0 \to \omega K_2^*(1430)^0) = -0.37 \pm 0.17$

$A_{CP}(B^0 \to K^+ \pi^- \pi^0) = (0 \pm 6) \times 10^{-2}$

$A_{CP}(B^0 \to \rho^- K^+) = 0.20 \pm 0.11$

$A_{CP}(B^0 \to \rho(1450)^- K^+) = -0.10 \pm 0.33$

$A_{CP}(B^0 \to \rho(1700)^- K^+) = -0.4 \pm 0.6$

$A_{CP}(B^0 \to K^+ \pi^- \pi^0 \text{ nonresonant}) = 0.10 \pm 0.18$

$A_{CP}(B^0 \to K^0 \pi^+ \pi^-) = -0.01 \pm 0.05$

$\boldsymbol{A_{CP}(B^0 \to K^*(892)^+ \pi^-)} = -0.27 \pm 0.04$

$A_{CP}(B^0 \to (K\pi)_0^{*+} \pi^-) = 0.02 \pm 0.04$

$A_{CP}(B^0 \to K_2^*(1430)^+ \pi^-) = -0.29 \pm 0.24$

$A_{CP}(B^0 \to K^*(1680)^+ \pi^-) = -0.07 \pm 0.14$

$A_{CP}(B^0 \to f_0(980) K_S^0) = 0.28 \pm 0.31$

$A_{CP}(B^0 \to (K\pi)_0^{*0} \pi^0) = -0.15 \pm 0.11$

$A_{CP}(B^0 \to K^{*0} \pi^0) = -0.15 \pm 0.13$

$A_{CP}(B^0 \to K^*(892)^0 \pi^+ \pi^-) = 0.07 \pm 0.05$

$A_{CP}(B^0 \to K^*(892)^0 \rho^0) = -0.06 \pm 0.09$

$A_{CP}(B^0 \to K^{*0} f_0(980)) = 0.07 \pm 0.10$

$A_{CP}(B^0 \to K^{*+} \rho^-) = 0.21 \pm 0.15$

$A_{CP}(B^0 \to K^*(892)^0 K^+ K^-) = 0.01 \pm 0.05$

$A_{CP}(B^0 \to a_1^- K^+) = -0.16 \pm 0.12$

$A_{CP}(B^0 \to K^0 K^0) = -0.6 \pm 0.7$

$A_{CP}(B^0 \to K^*(892)^0 \phi) = 0.00 \pm 0.04$

$A_{CP}(B^0 \to K^*(892)^0 K^- \pi^+) = 0.2 \pm 0.4$

$A_{CP}(B^0 \to \phi (K\pi)_0^{*0}) = 0.12 \pm 0.08$

$A_{CP}(B^0 \to \phi K_2^*(1430)^0) = -0.11 \pm 0.10$

$A_{CP}(B^0 \to K^*(892)^0 \gamma) = -0.006 \pm 0.011$

$A_{CP}(B^0 \to K_2^*(1430)^0 \gamma) = -0.08 \pm 0.15$

$A_{CP}(B^0 \to X_s \gamma) = -0.009 \pm 0.018$

$A_{CP}(B^0 \to \rho^+ \pi^-) = 0.13 \pm 0.06 \quad (S = 1.1)$

$A_{CP}(B^0 \to \rho^- \pi^+) = -0.08 \pm 0.08$

$A_{CP}(B^0 \to a_1(1260)^\pm \pi^\mp) = -0.07 \pm 0.06$

$A_{CP}(B^0 \to b_1^- \pi^+) = -0.05 \pm 0.10$

$A_{CP}(B^0 \to p\overline{p}K^*(892)^0) = 0.05 \pm 0.12$

$A_{CP}(B^0 \to p\overline{\Lambda}\pi^-) = 0.04 \pm 0.07$

$A_{CP}(B^0 \to K^{*0} \ell^+ \ell^-) = -0.05 \pm 0.10$

$A_{CP}(B^0 \to K^{*0} e^+ e^-) = -0.21 \pm 0.19$

$A_{CP}(B^0 \to K^{*0} \mu^+ \mu^-) = -0.034 \pm 0.024$

$C_{D^{*-}D^+} (B^0 \to D^*(2010)^- D^+) = -0.02 \pm 0.08$

$\mathbf{S_{D^{*-}D^+} (B^0 \to D^*(2010)^- D^+) = -0.83 \pm 0.09}$

$C_{D^{*+}D^-} (B^0 \to D^*(2010)^+ D^-) = -0.03 \pm 0.09 \quad (S = 1.1)$

$\mathbf{S_{D^{*+}D^-} (B^0 \to D^*(2010)^+ D^-) = -0.80 \pm 0.09}$

$C_{D^{*+}D^{*-}} (B^0 \to D^{*+} D^{*-}) = 0.01 \pm 0.09 \quad (S = 1.6)$

$\mathbf{S_{D^{*+}D^{*-}} (B^0 \to D^{*+} D^{*-}) = -0.59 \pm 0.14 \quad (S = 1.8)}$

$C_+ (B^0 \to D^{*+} D^{*-}) = 0.00 \pm 0.10 \quad (S = 1.6)$

$\mathbf{S_+ (B^0 \to D^{*+} D^{*-}) = -0.73 \pm 0.09}$

$C_- (B^0 \to D^{*+} D^{*-}) = 0.19 \pm 0.31$

$S_- (B^0 \to D^{*+} D^{*-}) = 0.1 \pm 1.6 \quad (S = 3.5)$

$C (B^0 \to D^*(2010)^+ D^*(2010)^- K_S^0) = 0.01 \pm 0.29$

$S (B^0 \to D^*(2010)^+ D^*(2010)^- K_S^0) = 0.1 \pm 0.4$

$C_{D^+D^-} (B^0 \to D^+ D^-) = -0.22 \pm 0.24 \quad (S = 2.5)$

$\mathbf{S_{D^+D^-} (B^0 \to D^+ D^-) = -0.76^{+0.15}_{-0.13} \quad (S = 1.2)}$

$C_{J/\psi(1S)\pi^0} (B^0 \to J/\psi(1S)\pi^0) = 0.03 \pm 0.17 \quad (S = 1.5)$

$\mathbf{S_{J/\psi(1S)\pi^0} (B^0 \to J/\psi(1S)\pi^0) = -0.88 \pm 0.32 \quad (S = 2.2)}$

$C(B^0 \to J/\psi(1S)\rho^0) = -0.06 \pm 0.06$

$\mathbf{S(B^0 \to J/\psi(1S)\rho^0) = -0.66^{+0.16}_{-0.12}}$

$C_{D_{CP}^{(*)} h^0} (B^0 \to D_{CP}^{(*)} h^0) = -0.02 \pm 0.08$

$\mathbf{S_{D_{CP}^{(*)} h^0} (B^0 \to D_{CP}^{(*)} h^0) = -0.66 \pm 0.12}$

$C_{K^0 \pi^0} (B^0 \to K^0 \pi^0) = 0.00 \pm 0.08$

$\mathbf{S_{K^0 \pi^0} (B^0 \to K^0 \pi^0) = 0.64 \pm 0.13}$

$C_{\eta'(958) K_S^0} (B^0 \to \eta'(958) K_S^0) = -0.04 \pm 0.20 \quad (S = 2.5)$

$S_{\eta'(958) K_S^0} (B^0 \to \eta'(958) K_S^0) = 0.43 \pm 0.17 \quad (S = 1.5)$

$C_{\eta' K^0} (B^0 \to \eta' K^0) = -0.06 \pm 0.04$

$\mathbf{S_{\eta' K^0} (B^0 \to \eta' K^0) = 0.63 \pm 0.06}$

$C_{\omega K_S^0} (B^0 \to \omega K_S^0) = 0.0 \pm 0.4 \quad (S = 3.0)$

$S_{\omega K_S^0} (B^0 \to \omega K_S^0) = 0.70 \pm 0.21$

$C\left(B^0 \to K_S^0 \pi^0 \pi^0\right) = -0.21 \pm 0.20$

$S\left(B^0 \to K_S^0 \pi^0 \pi^0\right) = 0.89^{+0.27}_{-0.30}$

$C_{\rho^0 K_S^0}\left(B^0 \to \rho^0 K_S^0\right) = -0.04 \pm 0.20$

$S_{\rho^0 K_S^0}\left(B^0 \to \rho^0 K_S^0\right) = 0.50^{+0.17}_{-0.21}$

$C_{f_0 K_S^0}\left(B^0 \to f_0(980) K_S^0\right) = 0.29 \pm 0.20$

$\boldsymbol{S_{f_0 K_S^0}\left(B^0 \to f_0(980) K_S^0\right) = -0.50 \pm 0.16}$

$S_{f_2 K_S^0}\left(B^0 \to f_2(1270) K_S^0\right) = -0.5 \pm 0.5$

$C_{f_2 K_S^0}\left(B^0 \to f_2(1270) K_S^0\right) = 0.3 \pm 0.4$

$S_{f_x K_S^0}\left(B^0 \to f_x(1300) K_S^0\right) = -0.2 \pm 0.5$

$C_{f_x K_S^0}\left(B^0 \to f_x(1300) K_S^0\right) = 0.13 \pm 0.35$

$S_{K^0 \pi^+ \pi^-}\left(B^0 \to K^0 \pi^+ \pi^- \text{ nonresonant}\right) = -0.01 \pm 0.33$

$C_{K^0 \pi^+ \pi^-}\left(B^0 \to K^0 \pi^+ \pi^- \text{ nonresonant}\right) = 0.01 \pm 0.26$

$C_{K_S^0 K_S^0}\left(B^0 \to K_S^0 K_S^0\right) = 0.0 \pm 0.4 \quad (S = 1.4)$

$S_{K_S^0 K_S^0}\left(B^0 \to K_S^0 K_S^0\right) = -0.8 \pm 0.5$

$C_{K^+ K^- K_S^0}\left(B^0 \to K^+ K^- K_S^0 \text{ nonresonant}\right) = 0.06 \pm 0.08$

$\boldsymbol{S_{K^+ K^- K_S^0}\left(B^0 \to K^+ K^- K_S^0 \text{ nonresonant}\right) = -0.66 \pm 0.11}$

$C_{K^+ K^- K_S^0}\left(B^0 \to K^+ K^- K_S^0 \text{ inclusive}\right) = 0.01 \pm 0.09$

$\boldsymbol{S_{K^+ K^- K_S^0}\left(B^0 \to K^+ K^- K_S^0 \text{ inclusive}\right) = -0.65 \pm 0.12}$

$C_{\phi K_S^0}\left(B^0 \to \phi K_S^0\right) = -0.09 \pm 0.12$

$\boldsymbol{S_{\phi K_S^0}\left(B^0 \to \phi K_S^0\right) = 0.58 \pm 0.12}$

$C_{K_S K_S K_S}\left(B^0 \to K_S K_S K_S\right) = -0.14 \pm 0.12$

$S_{K_S K_S K_S}\left(B^0 \to K_S K_S K_S\right) = -0.82 \pm 0.17$

$C_{K_S^0 \pi^0 \gamma}\left(B^0 \to K_S^0 \pi^0 \gamma\right) = 0.36 \pm 0.33$

$S_{K_S^0 \pi^0 \gamma}\left(B^0 \to K_S^0 \pi^0 \gamma\right) = -0.8 \pm 0.6$

$C_{K_S^0 \pi^+ \pi^- \gamma}\left(B^0 \to K_S^0 \pi^+ \pi^- \gamma\right) = -0.39 \pm 0.20$

$S_{K_S^0 \pi^+ \pi^- \gamma}\left(B^0 \to K_S^0 \pi^+ \pi^- \gamma\right) = 0.14 \pm 0.25$

$C_{K^{*0} \gamma}\left(B^0 \to K^*(892)^0 \gamma\right) = -0.04 \pm 0.16 \quad (S = 1.2)$

$S_{K^{*0} \gamma}\left(B^0 \to K^*(892)^0 \gamma\right) = -0.15 \pm 0.22$

$C_{\eta K^0 \gamma}\left(B^0 \to \eta K^0 \gamma\right) = 0.1 \pm 0.4 \quad (S = 1.4)$

$S_{\eta K^0 \gamma}\left(B^0 \to \eta K^0 \gamma\right) = -0.5 \pm 0.5 \quad (S = 1.2)$

$C_{K^0 \phi \gamma}\left(B^0 \to K^0 \phi \gamma\right) = -0.3 \pm 0.6$

$S_{K^0 \phi \gamma}\left(B^0 \to K^0 \phi \gamma\right) = 0.7^{+0.7}_{-1.1}$

$C\left(B^0 \to K_S^0 \rho^0 \gamma\right) = -0.05 \pm 0.19$

$S(B^0 \to K^0_S \rho^0 \gamma) = -0.04 \pm 0.23$

$C(B^0 \to \rho^0 \gamma) = 0.4 \pm 0.5$

$S(B^0 \to \rho^0 \gamma) = -0.8 \pm 0.7$

$\boldsymbol{C_{\pi\pi}(B^0 \to \pi^+\pi^-) = -0.314 \pm 0.030}$

$\boldsymbol{S_{\pi\pi}(B^0 \to \pi^+\pi^-) = -0.670 \pm 0.030}$

$C_{\pi^0\pi^0}(B^0 \to \pi^0\pi^0) = -0.30 \pm 0.20$

$C_{\rho\pi}(B^0 \to \rho^+\pi^-) = -0.03 \pm 0.07 \quad (S = 1.2)$

$S_{\rho\pi}(B^0 \to \rho^+\pi^-) = 0.05 \pm 0.07$

$\boldsymbol{\Delta C_{\rho\pi}(B^0 \to \rho^+\pi^-) = 0.27 \pm 0.06}$

$\Delta S_{\rho\pi}(B^0 \to \rho^+\pi^-) = 0.01 \pm 0.08$

$C_{\rho^0\pi^0}(B^0 \to \rho^0\pi^0) = 0.27 \pm 0.24$

$S_{\rho^0\pi^0}(B^0 \to \rho^0\pi^0) = -0.23 \pm 0.34$

$C_{a_1\pi}(B^0 \to a_1(1260)^+\pi^-) = -0.05 \pm 0.11$

$S_{a_1\pi}(B^0 \to a_1(1260)^+\pi^-) = -0.2 \pm 0.4 \quad (S = 3.2)$

$\boldsymbol{\Delta C_{a_1\pi}(B^0 \to a_1(1260)^+\pi^-) = 0.43 \pm 0.14 \quad (S = 1.3)}$

$\Delta S_{a_1\pi}(B^0 \to a_1(1260)^+\pi^-) = -0.11 \pm 0.12$

$C(B^0 \to b_1^- K^+) = -0.22 \pm 0.24$

$\boldsymbol{\Delta C(B^0 \to b_1^-\pi^+) = -1.04 \pm 0.24}$

$C_{\rho^0\rho^0}(B^0 \to \rho^0\rho^0) = 0.2 \pm 0.9$

$S_{\rho^0\rho^0}(B^0 \to \rho^0\rho^0) = 0.3 \pm 0.7$

$C_{\rho\rho}(B^0 \to \rho^+\rho^-) = 0.00 \pm 0.09$

$S_{\rho\rho}(B^0 \to \rho^+\rho^-) = -0.14 \pm 0.13$

$|\lambda|(B^0 \to J/\psi K^*(892)^0) < 0.25, \text{CL} = 95\%$

$\cos 2\beta(B^0 \to J/\psi K^*(892)^0) = 1.7^{+0.7}_{-0.9} \quad (S = 1.6)$

$\cos 2\beta(B^0 \to [K^0_S\pi^+\pi^-]_{D^{(*)}} h^0) = 0.91 \pm 0.25$

$(S_+ + S_-)/2 \, (B^0 \to D^{*-}\pi^+) = -0.039 \pm 0.011$

$(S_- - S_+)/2 \, (B^0 \to D^{*-}\pi^+) = -0.009 \pm 0.015$

$(S_+ + S_-)/2 \, (B^0 \to D^-\pi^+) = -0.046 \pm 0.023$

$(S_- - S_+)/2 \, (B^0 \to D^-\pi^+) = -0.022 \pm 0.021$

$S_+ (B^0 \to D^-\pi^+) = 0.058 \pm 0.023$

$S_- (B^0 \to D^+\pi^-) = 0.038 \pm 0.021$

$(S_+ + S_-)/2 \, (B^0 \to D^-\rho^+) = -0.024 \pm 0.032$

$(S_- - S_+)/2 \, (B^0 \to D^-\rho^+) = -0.10 \pm 0.06$

$C_{\eta_c K^0_S}(B^0 \to \eta_c K^0_S) = 0.08 \pm 0.13$

$\boldsymbol{S_{\eta_c K^0_S}(B^0 \to \eta_c K^0_S) = 0.93 \pm 0.17}$

$C_{c\bar{c}K^{(*)0}}(B^0 \to c\bar{c}K^{(*)0}) = (-0.5 \pm 1.5) \times 10^{-2}$

$\boldsymbol{\sin(2\beta) = 0.709 \pm 0.011}$

$C_{J/\psi(\text{nS})K^0}(B^0 \to J/\psi(\text{nS})K^0) = (-0.8 \pm 1.7) \times 10^{-2}$

$\boldsymbol{S_{J/\psi(\text{nS})K^0}(B^0 \to J/\psi(\text{nS})K^0) = 0.701 \pm 0.017}$

$C_{J/\psi K^{*0}} (B^0 \rightarrow J/\psi K^{*0}) = 0.03 \pm 0.10$

$S_{J/\psi K^{*0}} (B^0 \rightarrow J/\psi K^{*0}) = 0.60 \pm 0.25$

$C_{\chi_{c0} K^0_S} (B^0 \rightarrow \chi_{c0} K^0_S) = -0.3^{+0.5}_{-0.4}$

$S_{\chi_{c0} K^0_S} (B^0 \rightarrow \chi_{c0} K^0_S) = -0.7 \pm 0.5$

$C_{\chi_{c1} K^0_S} (B^0 \rightarrow \chi_{c1} K^0_S) = 0.06 \pm 0.07$

$\mathbf{S_{\chi_{c1} K^0_S} (B^0 \rightarrow \chi_{c1} K^0_S) = 0.63 \pm 0.10}$

$\sin(2\beta_{\text{eff}})(B^0 \rightarrow \phi K^0) = 0.22 \pm 0.30$

$\sin(2\beta_{\text{eff}})(B^0 \rightarrow \phi K^*_0(1430)^0) = 0.97^{+0.03}_{-0.52}$

$\mathbf{\sin(2\beta_{\text{eff}})(B^0 \rightarrow K^+ K^- K^0_S) = 0.77^{+0.13}_{-0.12}}$

$\sin(2\beta_{\text{eff}})(B^0 \rightarrow [K^0_S \pi^+ \pi^-]_{D^{(*)}} h^0) = 0.80 \pm 0.16$

$\beta_{\text{eff}}(B^0 \rightarrow [K^0_S \pi^+ \pi^-]_{D^{(*)}} h^0) = (22 \pm 5)^\circ$

$2\beta_{\text{eff}}(B^0 \rightarrow J/\psi \rho^0) = (42^{+10}_{-11})^\circ$

$|\lambda| (B^0 \rightarrow [K^0_S \pi^+ \pi^-]_{D^{(*)}} h^0) = 1.01 \pm 0.08$

$|\sin(2\beta + \gamma)| > 0.40, \text{CL} = 90\%$

$2\beta + \gamma = (80 \pm 60)^\circ$

$\mathbf{\alpha = (84.1^{+4.5}_{-3.8})^\circ}$

$x_+(B^0 \rightarrow DK^{*0}) = 0.04 \pm 0.17$

$x_-(B^0 \rightarrow DK^{*0}) = -0.16 \pm 0.14$

$y_+(B^0 \rightarrow DK^{*0}) = -0.68 \pm 0.22$

$y_-(B^0 \rightarrow DK^{*0}) = 0.20 \pm 0.25 \quad (\text{S} = 1.2)$

$\mathbf{r_{B^0}(B^0 \rightarrow DK^{*0}) = 0.257^{+0.021}_{-0.023}}$

$\mathbf{\delta_{B^0}(B^0 \rightarrow DK^{*0}) = (194.1^{+9.6}_{-8.8})^\circ}$

$a_{CP}(B^0 \rightarrow p\overline{p} K^+ \pi^-) = (0.5 \pm 0.9)\%$

$a_P(B^0 \rightarrow p\overline{p} K^+ \pi^-) = (1.5 \pm 0.9)\%$

$\overline{B}^0$ modes are charge conjugates of the modes below. Reactions indicate the weak decay vertex and do not include mixing. Modes which do not identify the charge state of the B are listed in the $B^\pm/B^0$ ADMIXTURE section.

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

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

For inclusive branching fractions, *e.g.*, $B \rightarrow D^\pm X$, the values usually are multiplicities, not branching fractions. They can be greater than one.

B^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$\ell^+ \nu_\ell X$	[a]	(10.33$\pm$ 0.28) %		−
$e^+ \nu_e X_c$		(10.1 $\pm$ 0.4) %		−
$\ell^+ \nu_\ell X_u$	[a]	(1.51$\pm$ 0.19) $\times 10^{-3}$		−
$D \ell^+ \nu_\ell X$	[a]	(9.1 $\pm$ 0.8) %		−
$D^- \ell^+ \nu_\ell$	[a]	(2.12$\pm$ 0.06) %		2309
$D^- \tau^+ \nu_\tau$		(9.9 $\pm$ 2.1) $\times 10^{-3}$		1909
$D^*(2010)^- \ell^+ \nu_\ell$	[a]	(4.90$\pm$ 0.12) %		2257
$D^*(2010)^- \tau^+ \nu_\tau$		(1.45$\pm$ 0.10) %	S=1.3	1838
$\overline{D}^{(*)} n \pi \ell^+ \nu_\ell (n \geq 1)$	[a]	(2.3 $\pm$ 0.5) %		−
$\overline{D}^0 \pi^- \ell^+ \nu_\ell$	[a]	(3.64$\pm$ 0.20) $\times 10^{-3}$		2308
$D_0^*(2300)^- \ell^+ \nu_\ell,$ $D_0^{*-} \to \overline{D}^0 \pi^-$	[a]	< 4.4 $\times 10^{-4}$	CL=90%	−
$D_2^*(2460)^- \ell^+ \nu_\ell,$ $D_2^{*-} \to \overline{D}^0 \pi^-$	[a]	(1.41$\pm$ 0.20) $\times 10^{-3}$	S=1.7	2065
$\overline{D}^{*0} \pi^- \ell^+ \nu_\ell$	[a]	(5.44$\pm$ 0.28) $\times 10^{-3}$		2256
$D_1(2420)^- \ell^+ \nu_\ell,$ $D_1^- \to \overline{D}^{*0} \pi^-$	[a]	(2.85$\pm$ 0.25) $\times 10^{-3}$		−
$D_1(2420)^- \ell^+ \nu_\ell,$ $D_1^- \to D^- \pi^+ \pi^-$	[a]	(1.02$\pm$ 0.16) $\times 10^{-3}$		−
$D_1'(2430)^- \ell^+ \nu_\ell,$ $D_1'^- \to \overline{D}^{*0} \pi^-$	[a]	(2.5 $\pm$ 0.6) $\times 10^{-3}$		−
$D_2^*(2460)^- \ell^+ \nu_\ell,$ $D_2^{*-} \to \overline{D}^{*0} \pi^-$	[a]	(6.6 $\pm$ 1.1) $\times 10^{-4}$		2065
$D^- \pi^+ \pi^- \ell^+ \nu_\ell$	[a]	(1.45$\pm$ 0.22) $\times 10^{-3}$		2299
$D^{*-} \pi^+ \pi^- \ell^+ \nu_\ell$	[a]	(5.1 $\pm$ 2.3) $\times 10^{-4}$		2247
$\rho^- \ell^+ \nu_\ell$	[a]	(2.94$\pm$ 0.21) $\times 10^{-4}$		2583
$\pi^- \ell^+ \nu_\ell$	[a]	(1.50$\pm$ 0.06) $\times 10^{-4}$		2638
$\pi^- \tau^+ \nu_\tau$		< 2.5 $\times 10^{-4}$	CL=90%	2339

Inclusive modes

$K^\pm X$		(78 $\pm$ 8) %		−
$D^0 X$		(8.1 $\pm$ 1.5) %		−
$\overline{D}^0 X$		(47.4 $\pm$ 2.8) %		−
$D^+ X$		< 3.9 %	CL=90%	−
$D^- X$		(36.9 $\pm$ 3.3) %		−
$D_s^+ X$		(10.3 $^{+\ 2.1}_{-\ 1.8}$) %		−
$D_s^- X$		< 2.6 %	CL=90%	−
$\Lambda_c^+ X$		< 3.1 %	CL=90%	−

$\overline{\Lambda}_c^- X$	$(\ 5.0\ {}^{+}_{-}\ {}^{2.1}_{1.5}\ )\ \%$	$-$
$\overline{c} X$	$(\ 95\ \pm\ 5\ )\ \%$	$-$
$c X$	$(\ 24.6\ \pm\ 3.1\ )\ \%$	$-$
$\overline{c}/c X$	$(119\ \pm\ 6\ )\ \%$	$-$

D, D^*, or D_s modes

$D^-\pi^+$	$(\ 2.51\pm\ 0.08)\times 10^{-3}$		2306
$D^-\rho^+$	$(\ 7.6\ \pm\ 1.2\ )\times 10^{-3}$		2235
$D^- K^0\pi^+$	$(\ 4.9\ \pm\ 0.9\ )\times 10^{-4}$		2259
$D^- K^*(892)^+$	$(\ 4.5\ \pm\ 0.7\ )\times 10^{-4}$		2211
$D^-\omega\pi^+$	$(\ 2.8\ \pm\ 0.6\ )\times 10^{-3}$		2204
$D^- K^+$	$(\ 2.05\pm\ 0.08)\times 10^{-4}$		2279
$D^- K^+\pi^+\pi^-$	$(\ 3.5\ \pm\ 0.8\ )\times 10^{-4}$		2236
$D^- K^+\overline{K}^0$	$<\ 3.1\ \times 10^{-4}$ CL=90%		2188
$D^- K^+\overline{K}^*(892)^0$	$(\ 8.8\ \pm\ 1.9\ )\times 10^{-4}$		2070
$\overline{D}^0\pi^+\pi^-$	$(\ 8.8\ \pm\ 0.5\ )\times 10^{-4}$		2301
$D^*(2010)^-\pi^+$	$(\ 2.66\pm\ 0.07)\times 10^{-3}$		2255
$\overline{D}^0 K^+ K^-$	$(\ 6.1\ \pm\ 0.5\ )\times 10^{-5}$		2191
$D^-\pi^+\pi^+\pi^-$	$(\ 6.0\ \pm\ 0.6\ )\times 10^{-3}$		2287
$(D^-\pi^+\pi^+\pi^-)$ nonresonant	$(\ 3.9\ \pm\ 1.9\ )\times 10^{-3}$		2287
$D^-\pi^+\rho^0$	$(\ 1.1\ \pm\ 1.0\ )\times 10^{-3}$		2206
$D^- a_1(1260)^+$	$(\ 6.0\ \pm\ 3.3\ )\times 10^{-3}$		2121
$D^*(2010)^-\pi^+\pi^0$	$(\ 1.5\ \pm\ 0.5\ )\ \%$		2248
$D^*(2010)^-\rho^+$	$(\ 6.8\ \pm\ 0.9\ )\times 10^{-3}$		2180
$D^*(2010)^- K^+$	$(\ 2.16\pm\ 0.08)\times 10^{-4}$		2226
$D^*(2010)^- K^0\pi^+$	$(\ 3.0\ \pm\ 0.8\ )\times 10^{-4}$		2205
$D^*(2010)^- K^*(892)^+$	$(\ 3.3\ \pm\ 0.6\ )\times 10^{-4}$		2155
$D^*(2010)^- K^+\overline{K}^0$	$<\ 4.7\ \times 10^{-4}$ CL=90%		2131
$D^*(2010)^- K^+\overline{K}^*(892)^0$	$(\ 1.29\pm\ 0.33)\times 10^{-3}$		2007
$D^*(2010)^-\pi^+\pi^+\pi^-$	$(\ 7.21\pm\ 0.29)\times 10^{-3}$		2235
$(D^*(2010)^-\pi^+\pi^+\pi^-)$ non-resonant	$(\ 0.0\ \pm\ 2.5\ )\times 10^{-3}$		2235
$D^*(2010)^-\pi^+\rho^0$	$(\ 5.7\ \pm\ 3.2\ )\times 10^{-3}$		2150
$D^*(2010)^- a_1(1260)^+$	$(\ 1.30\pm\ 0.27)\ \%$		2061
$\overline{D}_1(2420)^0\pi^-\pi^+,\ \overline{D}_1^0\to D^{*-}\pi^+$	$(\ 1.47\pm\ 0.35)\times 10^{-4}$		$-$
$D^*(2010)^- K^+\pi^-\pi^+$	$(\ 4.7\ \pm\ 0.4\ )\times 10^{-4}$		2181
$D^*(2010)^-\pi^+\pi^+\pi^-\pi^0$	$(\ 1.76\pm\ 0.27)\ \%$		2218
$D^{*-}3\pi^+2\pi^-$	$(\ 4.7\ \pm\ 0.9\ )\times 10^{-3}$		2195
$D^*(2010)^-\omega\pi^+$	$(\ 2.46\pm\ 0.18)\times 10^{-3}$	S=1.2	2148
$\overline{D}_1(2430)^0\omega,\ \overline{D}_1^0\to D^{*-}\pi^+$	$(\ 2.7\ {}^{+}_{-}\ {}^{0.8}_{0.4}\ )\times 10^{-4}$		1992
$D^{*-}\rho(1450)^+,\ \rho^+\to\omega\pi^+$	$(\ 1.07\ {}^{+}_{-}\ {}^{0.40}_{0.34})\times 10^{-3}$		$-$

$\overline{D}_1(2420)^0\,\omega,\ \overline{D}_1^0 \to$ $D^{*-}\pi^+$		$(\ 7.0\ \pm\ 2.2\ )\times 10^{-5}$	1995
$\overline{D}_2^*(2460)^0\,\omega,\ \overline{D}_2^0 \to$ $D^{*-}\pi^+$		$(\ 4.0\ \pm\ 1.4\ )\times 10^{-5}$	1975
$D^{*-}\,b_1(1235)^+,\ b_1^+ \to$ $\omega\pi^+$		$<\ 7\qquad\quad\ \times 10^{-5}$ CL=90%	–
$\overline{D}^{**-}\pi^+$	[e]	$(\ 1.9\ \pm\ 0.9\ )\times 10^{-3}$	–
$D_1(2420)^-\pi^+,\ D_1^- \to$ $D^-\pi^+\pi^-$		$(\ 9.9\ {}^{+\ 2.0}_{-\ 2.5}\ )\times 10^{-5}$	–
$D_1(2420)^-\pi^+,\ D_1^- \to$ $D^{*-}\pi^+\pi^-$		$<\ 3.3\qquad\quad \times 10^{-5}$ CL=90%	–
$\overline{D}_2^*(2460)^-\pi^+,\ D_2^{*-} \to$ $D^0\pi^-$		$(\ 2.38\pm\ 0.16)\times 10^{-4}$	2062
$\overline{D}_0^*(2400)^-\pi^+,\ D_0^{*-} \to$ $D^0\pi^-$		$(\ 7.6\ \pm\ 0.8\ )\times 10^{-5}$	2090
$D_2^*(2460)^-\pi^+,\ D_2^{*-} \to$ $D^{*-}\pi^+\pi^-$		$<\ 2.4\qquad\quad \times 10^{-5}$ CL=90%	–
$\overline{D}_2^*(2460)^-\rho^+$		$<\ 4.9\qquad\quad \times 10^{-3}$ CL=90%	1974
$D^0\overline{D}^0$		$(\ 1.4\ \pm\ 0.7\ )\times 10^{-5}$	1868
$D^{*0}\overline{D}^0$		$<\ 2.9\qquad\quad \times 10^{-4}$ CL=90%	1794
D^-D^+		$(\ 2.11\pm\ 0.18)\times 10^{-4}$	1864
$D^\pm D^{*\mp}\,(CP\text{-averaged})$		$(\ 6.1\ \pm\ 0.6\ )\times 10^{-4}$	–
$D^-D_s^+$		$(\ 7.2\ \pm\ 0.8\ )\times 10^{-3}$	1812
$\overline{D}^0 D_s^+\pi^-$		$(\ 5.1\ \pm\ 1.1\ )\,\%$	1739
$D^*(2010)^- D_s^+$		$(\ 8.0\ \pm\ 1.1\ )\times 10^{-3}$	1735
$D_2^*(2460)^- D_s^+$		$(\ 1.14\pm\ 0.26)\,\%$	1427
$D_1^*(2600)^- D_s^+$		$(\ 7\ \ \pm\ 4\ \ )\times 10^{-4}$	–
$D_3^*(2750)^- D_s^+$		$(\ 1.6\ \pm\ 1.2\ )\times 10^{-4}$	–
$D_1^*(2760)^- D_s^+$		$(\ 1\ \ \pm\ 8\ \ )\times 10^{-4}$	–
$D_J^*(3000)^- D_s^+$		$(\ 2.3\ \pm\ 2.2\ )\times 10^{-4}$	–
$T_{cs0}^*(2870)^0\overline{D}^0$		$(\ 1.3\ \pm\ 0.6\ )\times 10^{-3}$	1151
$D^-D_s^{*+}$		$(\ 7.4\ \pm\ 1.6\ )\times 10^{-3}$	1732
$D^*(2010)^- D_s^{*+}$		$(\ 1.77\pm\ 0.14)\,\%$	1649
$D_{s0}(2317)^- K^+,\ D_{s0}^- \to$ $D_s^-\pi^0$		$(\ 4.2\ \pm\ 1.4\ )\times 10^{-5}$	2097
$D_{s0}(2317)^-\pi^+,\ D_{s0}^- \to$ $D_s^-\pi^0$		$<\ 2.5\qquad\quad \times 10^{-5}$ CL=90%	2128
$D_{sJ}(2457)^- K^+,\ D_{sJ}^- \to$ $D_s^-\pi^0$		$<\ 9.4\qquad\quad \times 10^{-6}$ CL=90%	–
$D_{sJ}(2457)^-\pi^+,\ D_{sJ}^- \to$ $D_s^-\pi^0$		$<\ 4.0\qquad\quad \times 10^{-6}$ CL=90%	–

$D_s^- D_s^+$	$<$ 3.6	$\times 10^{-5}$ CL=90%	1759
$D_s^{*-} D_s^+$	$<$ 1.3	$\times 10^{-4}$ CL=90%	1675
$D_s^{*-} D_s^{*+}$	$<$ 2.4	$\times 10^{-4}$ CL=90%	1584
$D_{s0}^*(2317)^+ D^-$, $D_{s0}^{*+} \to$ $D_s^+ \pi^0$	(1.06$\pm$ 0.16)$\times 10^{-3}$	S=1.1	1602
$D_{s0}(2317)^+ D^-$, $D_{s0}^+ \to$ $D_s^{*+} \gamma$	$<$ 9.5	$\times 10^{-4}$ CL=90%	–
$D_{s0}(2317)^+ D^*(2010)^-$, $D_{s0}^+ \to D_s^+ \pi^0$	(1.5 $\pm$ 0.6)$\times 10^{-3}$		1509
$D_{sJ}(2457)^+ D^-$	(3.5 $\pm$ 1.1)$\times 10^{-3}$		–
$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to$ $D_s^+ \gamma$	(6.5 $^{+\,1.7}_{-\,1.4}$)$\times 10^{-4}$		–
$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to$ $D_s^{*+} \gamma$	$<$ 6.0	$\times 10^{-4}$ CL=90%	–
$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to$ $D_s^+ \pi^+ \pi^-$	$<$ 2.0	$\times 10^{-4}$ CL=90%	–
$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to$ $D_s^+ \pi^0$	$<$ 3.6	$\times 10^{-4}$ CL=90%	–
$D^*(2010)^- D_{sJ}(2457)^+$	(9.3 $\pm$ 2.2)$\times 10^{-3}$		–
$D_{sJ}(2457)^+ D^*(2010)$, $D_{sJ}^+ \to$ $D_s^+ \gamma$	(2.3 $^{+\,0.9}_{-\,0.7}$)$\times 10^{-3}$		–
$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to$ $D^{*0} K^+ + D^{*+} K^0$	(2.8 $\pm$ 0.7)$\times 10^{-4}$		1444
$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to$ $D^{*0} K^+$	(1.7 $\pm$ 0.6)$\times 10^{-4}$		1444
$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to$ $D^{*+} K^0$	(2.6 $\pm$ 1.1)$\times 10^{-4}$		1444
$D^*(2010)^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+ + D^{*+} K^0$	(5.0 $\pm$ 1.4)$\times 10^{-4}$		1336
$D^*(2010)^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+$	(3.3 $\pm$ 1.1)$\times 10^{-4}$		1336
$D^{*-} D_{s1}(2536)^+$, $D_{s1}^+ \to$ $D^{*+} K^0$	(5.0 $\pm$ 1.7)$\times 10^{-4}$		1336
$D^- D_{sJ}(2573)^+$, $D_{sJ}^+ \to$ $D^0 K^+$	(3.4 $\pm$ 1.8)$\times 10^{-5}$		1414
$D^*(2010)^- D_{sJ}(2573)^+$, $D_{sJ}^+ \to D^0 K^+$	$<$ 2	$\times 10^{-4}$ CL=90%	1304
$D^- D_{sJ}(2700)^+$, $D_{sJ}^+ \to$ $D^0 K^+$	(7.1 $\pm$ 1.2)$\times 10^{-4}$		–
$D^+ \pi^-$	(7.3 $\pm$ 1.2)$\times 10^{-7}$		2306

$D_s^+ \pi^-$	$(\ 2.03 \pm\ 0.18) \times 10^{-5}$		2271
$D_s^{*+} \pi^-$	$(\ 2.1\ \pm\ 0.4\ ) \times 10^{-5}$	S=1.4	2215
$D_s^+ \rho^-$	$<\ \ 2.4\ \ \ \ \times 10^{-5}$ CL=90%		2197
$D_s^{*+} \rho^-$	$(\ 4.1\ \pm\ 1.3\ ) \times 10^{-5}$		2138
$D_s^+ a_0^-$	$<\ \ 1.9\ \ \ \ \times 10^{-5}$ CL=90%		–
$D_s^{*+} a_0^-$	$<\ \ 3.6\ \ \ \ \times 10^{-5}$ CL=90%		–
$D_s^+ a_1(1260)^-$	$<\ \ 2.1\ \ \ \ \times 10^{-3}$ CL=90%		2080
$D_s^{*+} a_1(1260)^-$	$<\ \ 1.7\ \ \ \ \times 10^{-3}$ CL=90%		2015
$D_s^+ a_2^-$	$<\ \ 1.9\ \ \ \ \times 10^{-4}$ CL=90%		–
$D_s^{*+} a_2^-$	$<\ \ 2.0\ \ \ \ \times 10^{-4}$ CL=90%		–
$D_s^- K^+$	$(\ 2.7\ \pm\ 0.5\ ) \times 10^{-5}$	S=2.7	2242
$D_s^{*-} K^+$	$(\ 2.19 \pm\ 0.30) \times 10^{-5}$		2185
$D_{s1}(2536)^\mp K^\pm,\ \ D_{s1}^- \rightarrow$ $\overline{D}{}^*(2007)^0 K^-$	$(\ 5.1\ \pm\ 0.6\ ) \times 10^{-6}$		–
$D_s^- K^*(892)^+$	$(\ 3.5\ \pm\ 1.0\ ) \times 10^{-5}$		2172
$D_s^{*-} K^*(892)^+$	$(\ 3.2\ {}^{+\ 1.5}_{-\ 1.3}\ ) \times 10^{-5}$		2112
$D_s^- \pi^+ K^0$	$(\ 9.7\ \pm\ 1.4\ ) \times 10^{-5}$		2222
$D_s^{*-} \pi^+ K^0$	$<\ \ 1.10\ \ \ \ \times 10^{-4}$ CL=90%		2164
$D_s^- K^+ \pi^+ \pi^-$	$(\ 1.7\ \pm\ 0.5\ ) \times 10^{-4}$		2198
$D_s^- \pi^+ K^*(892)^0$	$<\ \ 3.0\ \ \ \ \times 10^{-3}$ CL=90%		2138
$D_s^{*-} \pi^+ K^*(892)^0$	$<\ \ 1.6\ \ \ \ \times 10^{-3}$ CL=90%		2076
$\overline{D}{}^0 K^0$	$(\ 5.5\ \pm\ 0.4\ ) \times 10^{-5}$		2280
$\overline{D}{}^0 K^+ \pi^-$	$(\ 8.8\ \pm\ 1.7\ ) \times 10^{-5}$		2262
$\overline{D}{}^0 K^*(892)^0$	$(\ 4.5\ \pm\ 0.6\ ) \times 10^{-5}$		2213
$\overline{D}{}^0 K^*(1410)^0$	$<\ \ 6.7\ \ \ \ \times 10^{-5}$ CL=90%		2062
$\overline{D}{}^0 K_0^*(1430)^0$	$(\ 7\ \ \ \pm\ 7\ \ \ ) \times 10^{-6}$		2058
$\overline{D}{}^0 K_2^*(1430)^0$	$(\ 2.1\ \pm\ 0.9\ ) \times 10^{-5}$		2057
$D_0^*(2300)^- K^+,\ \ D_0^{*-} \rightarrow$ $\overline{D}{}^0 \pi^-$	$(\ 1.9\ \pm\ 0.9\ ) \times 10^{-5}$		–
$D_2^*(2460)^- K^+,\ \ D_2^{*-} \rightarrow$ $\overline{D}{}^0 \pi^-$	$(\ 2.03 \pm\ 0.35) \times 10^{-5}$		2029
$D_3^*(2760)^- K^+,\ \ D_3^{*-} \rightarrow$ $\overline{D}{}^0 \pi^-$	$<\ \ 1.0\ \ \ \ \times 10^{-6}$ CL=90%		–
$\overline{D}{}^0 K^+ \pi^-$ nonresonant	$<\ \ 3.7\ \ \ \ \times 10^{-5}$ CL=90%		2262
$[K^+ K^-]_D K^*(892)^0$	$(\ 4.2\ \pm\ 0.7\ ) \times 10^{-5}$		–
$[\pi^+ \pi^-]_D K^*(892)^0$	$(\ 6.0\ \pm\ 1.1\ ) \times 10^{-5}$		–
$[\pi^+ \pi^- \pi^+ \pi^-]_D K^{*0}$	$(\ 4.6\ \pm\ 0.9\ ) \times 10^{-5}$		–
$\overline{D}{}^0 \pi^0$	$(\ 2.67 \pm\ 0.09) \times 10^{-4}$		2308
$\overline{D}{}^0 \rho^0$	$(\ 3.21 \pm\ 0.21) \times 10^{-4}$		2237
$\overline{D}{}^0 f_2$	$(\ 1.56 \pm\ 0.21) \times 10^{-4}$		–
$\overline{D}{}^0 \eta$	$(\ 2.56 \pm\ 0.12) \times 10^{-4}$		2274

$\overline{D}^0 \eta'$	(1.38± 0.16) $\times 10^{-4}$	S=1.3	2198
$\overline{D}^0 \omega$	(2.54± 0.16) $\times 10^{-4}$		2235
$\overline{D}^0 \phi$	(7.7 ± 2.3) $\times 10^{-7}$		2183
$D^0 K^+ \pi^-$	(5.3 ± 3.2) $\times 10^{-6}$		2262
$D^0 K^*(892)^0$	(3.0 ± 0.6) $\times 10^{-6}$		2213
$\overline{D}^{*0} \gamma$	< 2.5 $\times 10^{-5}$	CL=90%	2258
$\overline{D}^*(2007)^0 \pi^0$	(2.2 ± 0.6) $\times 10^{-4}$	S=2.6	2256
$\overline{D}^*(2007)^0 \rho^0$	< 5.1 $\times 10^{-4}$	CL=90%	2182
$\overline{D}^*(2007)^0 \eta$	(2.3 ± 0.6) $\times 10^{-4}$	S=2.8	2220
$\overline{D}^*(2007)^0 \eta'$	(1.40± 0.22) $\times 10^{-4}$		2141
$\overline{D}^*(2007)^0 \pi^+ \pi^-$	(6.2 ± 2.2) $\times 10^{-4}$		2249
$\overline{D}^*(2007)^0 K^+ \pi^-$	(5.2 ± 1.9) $\times 10^{-5}$		2207
$\overline{D}^*(2007)^0 K^0$	(3.6 ± 1.2) $\times 10^{-5}$		2227
$\overline{D}^*(2007)^0 K^*(892)^0$	< 6.9 $\times 10^{-5}$	CL=90%	2157
$\overline{D}^*(2007)^0 \phi$	(2.2 ± 0.6) $\times 10^{-6}$		2125
$D^*(2007)^0 K^*(892)^0$	< 4.0 $\times 10^{-5}$	CL=90%	2157
$D^*(2007)^0 \pi^+ \pi^+ \pi^- \pi^-$	(2.7 ± 0.5) $\times 10^{-3}$		2219
$D^*(2010)^+ D^*(2010)^-$	(8.0 ± 0.6) $\times 10^{-4}$		1711
$\overline{D}^*(2007)^0 \omega$	(3.6 ± 1.1) $\times 10^{-4}$	S=3.1	2180
$D^*(2010)^+ D^-$	(6.1 ± 1.5) $\times 10^{-4}$	S=1.6	1790
$D^*(2007)^0 \overline{D}^*(2007)^0$	< 9 $\times 10^{-5}$	CL=90%	1715
$D^- D^0 K^+$	(1.07± 0.11) $\times 10^{-3}$		1574
$D^- D^*(2007)^0 K^+$	(3.5 ± 0.4) $\times 10^{-3}$		1478
$D^*(2010)^- D^0 K^+$	(2.47± 0.21) $\times 10^{-3}$		1479
$D^*(2010)^- D^*(2007)^0 K^+$	(1.06± 0.09) %		1366
$D^- D^+ K^0$	(7.5 ± 1.7) $\times 10^{-4}$		1568
$D^*(2010)^- D^+ K^0 +$ $D^- D^*(2010)^+ K^0$	(6.4 ± 0.5) $\times 10^{-3}$		1473
$D^*(2010)^- D^*(2010)^+ K^0$	(8.1 ± 0.7) $\times 10^{-3}$		1360
$D^{*-} D_{s1}(2536)^+, \ D_{s1}^+ \to$ $D^{*+} K^0$	(8.0 ± 2.4) $\times 10^{-4}$		1336
$\overline{D}^0 D^0 K^0$	(2.7 ± 1.1) $\times 10^{-4}$		1575
$D^0 \overline{D}^0 K^+ \pi^-$	(3.5 ± 0.5) $\times 10^{-4}$		1476
$\overline{D}^0 D^*(2007)^0 K^0 +$ $\overline{D}^*(2007)^0 D^0 K^0$	(1.1 ± 0.5) $\times 10^{-3}$		1478
$\overline{D}^*(2007)^0 D^*(2007)^0 K^0$	(2.4 ± 0.9) $\times 10^{-3}$		1365
$(\overline{D}+\overline{D}^*)(D+D^*) K$	(3.68± 0.26) %		–

Charmonium modes

$\eta_c K^0$	(9.0 ± 1.1) $\times 10^{-4}$		1751
$\eta_c(1S) K^+ \pi^-$	(6.5 ± 0.7) $\times 10^{-4}$		1722
$\eta_c(1S) K^+ \pi^-$ (NR)	(6.7 ± 1.4) $\times 10^{-5}$		–
$T_{c\overline{c}}(4100)^- K^+, \ T_{c\overline{c}}^- \to$ $\eta_c \pi^-$	(2.2 ± 1.1) $\times 10^{-5}$		–
$\eta_c(1S) K^*(1410)^0$	(2.1 ± 1.6) $\times 10^{-4}$		1395

$\eta_c(1S) K_0^*(1430)^0$	$(\ 1.8\ \pm\ 0.4\ ) \times 10^{-4}$		1387
$\eta_c(1S) K_2^*(1430)^0$	$(\ 5.4\ ^{+\ 2.4}_{-\ 2.9}\ ) \times 10^{-5}$		1386
$\eta_c(1S) K^*(1680)^0$	$(\ 4\ \ \pm\ 4\ \ ) \times 10^{-5}$		1166
$\eta_c(1S) K_0^*(1950)^0$	$(\ 4.8\ ^{+\ 3.2}_{-\ 4.0}\ ) \times 10^{-5}$		–
$\eta_c K^*(892)^0$	$(\ 5.3\ ^{+\ 0.8}_{-\ 0.9}\ ) \times 10^{-4}$	S=1.7	1646
$\eta_c(2S) K_S^0,\ \ \eta_c \to\ p\overline{p}\pi^+\pi^-$	$(\ 4.2\ ^{+\ 1.4}_{-\ 1.2}\ ) \times 10^{-7}$		–
$\eta_c(2S) K^{*0}$	$<\ \ 3.9\ \ \ \ \ \ \ \ \ \ \times 10^{-4}$	CL=90%	1159
$h_c(1P) K_S^0$	$<\ \ 1.4\ \ \ \ \ \ \ \ \ \ \times 10^{-5}$		1401
$h_c(1P) K^{*0}$	$<\ \ 4\ \ \ \ \ \ \ \ \ \ \times 10^{-4}$	CL=90%	1253
$J/\psi(1S) K^0$	$(\ 8.91\pm\ 0.21) \times 10^{-4}$		1683
$J/\psi(1S) K^+\pi^-$	$(\ 1.15\pm\ 0.05) \times 10^{-3}$		1652
$\ \ \ J/\psi(1S) K^*(892)^0$	$(\ 1.27\pm\ 0.05) \times 10^{-3}$		1572
$J/\psi(1S)\eta K_S^0$	$(\ 5.4\ \pm\ 0.9\ ) \times 10^{-5}$		1508
$J/\psi(1S)\eta' K_S^0$	$<\ \ 2.5\ \ \ \ \ \ \ \ \ \ \times 10^{-5}$	CL=90%	1271
$J/\psi(1S)\phi K^0$	$(\ 4.9\ \pm\ 1.0\ ) \times 10^{-5}$	S=1.3	1224
$J/\psi(1S)\omega K^0$	$(\ 2.3\ \pm\ 0.4\ ) \times 10^{-4}$		1386
$\ \ \ \chi_{c0}(3915),\ \ \chi_{c0} \to\ J/\psi\omega$	$(\ 2.1\ \pm\ 0.9\ ) \times 10^{-5}$		1102
$J/\psi(1S) K(1270)^0$	$(\ 1.3\ \pm\ 0.5\ ) \times 10^{-3}$		1402
$J/\psi(1S)\pi^0$	$(\ 1.66\pm\ 0.10) \times 10^{-5}$		1728
$J/\psi(1S)\eta$	$(\ 1.08\pm\ 0.23) \times 10^{-5}$	S=1.5	1673
$J/\psi(1S)\pi^+\pi^-$	$(\ 3.99\pm\ 0.15) \times 10^{-5}$		1716
$\ \ \ J/\psi(1S)\pi^+\pi^-$ nonresonant	$<\ \ 1.2\ \ \ \ \ \ \ \ \ \ \times 10^{-5}$	CL=90%	1716
$\ \ \ J/\psi(1S) f_0(500),\ \ f_0 \to\ \pi\pi$	$(\ 8.8\ ^{+\ 1.2}_{-\ 1.6}\ ) \times 10^{-6}$		–
$\ \ \ J/\psi(1S) f_2$	$(\ 3.3\ ^{+\ 0.5}_{-\ 0.6}\ ) \times 10^{-6}$	S=1.5	–
$\ \ \ J/\psi(1S)\rho^0$	$(\ 2.55^{+\ 0.18}_{-\ 0.16}) \times 10^{-5}$		1612
$\ \ \ J/\psi(1S) f_0(980),\ \ f_0 \to \pi^+\pi^-$	$<\ \ 1.1\ \ \ \ \ \ \ \ \ \ \times 10^{-6}$	CL=90%	–
$\ \ \ J/\psi(1S)\rho(1450)^0,\ \ \rho^0 \to \pi\pi$	$(\ 2.9\ ^{+\ 1.6}_{-\ 0.7}\ ) \times 10^{-6}$		–
$J/\psi\,\rho(1700)^0,\ \ \rho^0 \to\ \pi^+\pi^-$	$(\ 2.0\ \pm\ 1.3\ ) \times 10^{-6}$		–
$J/\psi(1S)\omega$	$(\ 1.8\ ^{+\ 0.7}_{-\ 0.5}\ ) \times 10^{-5}$		1609
$J/\psi(1S) K^+ K^-$	$(\ 2.53\pm\ 0.35) \times 10^{-6}$		1534
$\ \ \ J/\psi(1S) a_0(980),\ \ a_0 \to K^+ K^-$	$(\ 4.7\ \pm\ 3.4\ ) \times 10^{-7}$		–
$J/\psi(1S)\phi$	$<\ \ 1.1\ \ \ \ \ \ \ \ \ \ \times 10^{-7}$	CL=90%	1520
$J/\psi(1S)\eta'(958)$	$(\ 7.6\ \pm\ 2.4\ ) \times 10^{-6}$		1546
$J/\psi(1S) K^0\pi^+\pi^-$	$(\ 4.5\ \pm\ 0.4\ ) \times 10^{-4}$		1611
$J/\psi(1S) K^0 K^-\pi^+ +$ c.c.	$<\ \ 2.1\ \ \ \ \ \ \ \ \ \ \times 10^{-5}$	CL=90%	1468
$J/\psi(1S) K^0 K^+ K^-$	$(\ 2.5\ \pm\ 0.7\ ) \times 10^{-5}$	S=1.8	1249

$J/\psi(1S)K^0\rho^0$		$(\ 5.4\ \pm\ 3.0\ )\times 10^{-4}$		1390
$J/\psi(1S)K^*(892)^+\pi^-$		$(\ 8\ \ \pm\ 4\ \ )\times 10^{-4}$		1515
$J/\psi(1S)\pi^+\pi^-\pi^+\pi^-$		$(\ 1.44\pm\ 0.12)\times 10^{-5}$		1670
$J/\psi(1S)f_1(1285)$		$(\ 8.4\ \pm\ 2.1\ )\times 10^{-6}$		1385
$J/\psi(1S)K^*(892)^0\pi^+\pi^-$		$(\ 6.6\ \pm\ 2.2\ )\times 10^{-4}$		1447
$\eta_{c2}(1D)K^0_S,\ \eta_{c2}\to\ h_c\gamma$	$<$	$3.5\qquad\quad\times 10^{-5}$	CL=90%	$-$
$\eta_{c2}(1D)\pi^-K^+,\ \eta_{c2}\to\ h_c\gamma$	$<$	$1.0\qquad\quad\times 10^{-4}$	CL=90%	$-$
$\chi_{c1}(3872)^-K^+$	$<$	$5\qquad\qquad\times 10^{-4}$	CL=90%	$-$
$\chi_{c1}(3872)^-K^+,$ $\chi_{c1}(3872)^-\to$ $J/\psi(1S)\pi^-\pi^0$	[f] $<$	$4.2\qquad\quad\times 10^{-6}$	CL=90%	$-$
$\chi_{c1}(3872)K^0$		$(\ 1.4\ \pm\ 0.4\ )\times 10^{-4}$	S=1.1	1140
$\chi_{c1}(3872)K^*(892)^0$		$(\ 1.1\ \pm\ 0.5\ )\times 10^{-4}$		940
$\chi_{c1}(3872)K^+\pi^-$		$(\ 2.2\ \pm\ 0.7\ )\times 10^{-4}$		1087
$\chi_{c1}(3872)\gamma$	$<$	$1.5\qquad\quad\times 10^{-5}$	CL=90%	1220
$T_{c\overline{c}1}(4430)^\pm K^\mp,\ T^\pm_{c\overline{c}1}\to$ $\psi(2S)\pi^\pm$		$(\ 6.0\ {}^{+\ 3.0}_{-\ 2.4}\ )\times 10^{-5}$		583
$T_{c\overline{c}1}(4430)^\pm K^\mp,\ T^\pm_{c\overline{c}1}\to$ $J/\psi\pi^\pm$		$(\ 5.4\ {}^{+\ 4.0}_{-\ 1.2}\ )\times 10^{-6}$		583
$T_{c\overline{c}1}(3900)^\pm K^\mp,\ T^\pm_{c\overline{c}1}\to$ $J/\psi\pi^\pm$	$<$	$9\qquad\qquad\times 10^{-7}$		$-$
$T_{c\overline{c}1}(4200)^\pm K^\mp,\ T^\pm_{c\overline{c}1}\to$ $J/\psi\pi^\pm$		$(\ 2.2\ {}^{+\ 1.3}_{-\ 0.8}\ )\times 10^{-5}$		$-$
$J/\psi(1S)p\overline{p}$		$(\ 4.5\ \pm\ 0.6\ )\times 10^{-7}$		862
$J/\psi(1S)\gamma$	$<$	$1.5\qquad\quad\times 10^{-6}$	CL=90%	1732
$J/\psi\mu^+\mu^-,\ J/\psi\to\ \mu^+\mu^-$	$<$	$1.0\qquad\quad\times 10^{-9}$	CL=95%	$-$
$J/\psi(1S)\overline{D}^0$	$<$	$1.3\qquad\quad\times 10^{-5}$	CL=90%	877
$\psi(2S)\pi^0$		$(\ 1.17\pm\ 0.19)\times 10^{-5}$		1348
$\psi(2S)K^0$		$(\ 5.8\ \pm\ 0.5\ )\times 10^{-4}$		1283
$\psi(2S)K^0\pi^+\pi^-$		$(\ 2.81\pm\ 0.30)\times 10^{-4}$		1177
$\psi(3770)K^0,\ \psi\to\ \overline{D}^0D^0$	$<$	$1.23\qquad\quad\times 10^{-4}$	CL=90%	1217
$\psi(3770)K^0,\ \psi\to\ D^-D^+$	$<$	$1.88\qquad\quad\times 10^{-4}$	CL=90%	1217
$\psi(2S)\pi^+\pi^-$		$(\ 2.24\pm\ 0.35)\times 10^{-5}$		1332
$\psi(2S)K^+\pi^-$		$(\ 5.8\ \pm\ 0.4\ )\times 10^{-4}$		1239
$\psi(2S)K^*(892)^0$		$(\ 5.9\ \pm\ 0.4\ )\times 10^{-4}$		1116
$\chi_{c0}K^0$		$(\ 1.9\ \pm\ 0.4\ )\times 10^{-4}$		1478
$\chi_{c0}K^*(892)^0$		$(\ 1.7\ \pm\ 0.4\ )\times 10^{-4}$		1342
$\chi_{c1}\pi^0$		$(\ 1.12\pm\ 0.28)\times 10^{-5}$		1468
$\chi_{c1}K^0$		$(\ 3.95\pm\ 0.27)\times 10^{-4}$		1411
$\chi_{c1}\pi^-K^+$		$(\ 4.97\pm\ 0.30)\times 10^{-4}$		1372
$\chi_{c1}K^*(892)^0$		$(\ 2.38\pm\ 0.19)\times 10^{-4}$	S=1.2	1265

$T_{c\bar{c}}(4050)^- K^+$, $T_{c\bar{c}}^- \to \chi_{c1}\pi^-$	$(\ 3.0\ {}^{+\ 4.0}_{-\ 1.8}\ ) \times 10^{-5}$	$-$
$T_{c\bar{c}}(4250)^- K^+$, $T_{c\bar{c}}^- \to \chi_{c1}\pi^-$	$(\ 4.0\ {}^{+20.0}_{-\ 1.0}\ ) \times 10^{-5}$	$-$
$\chi_{c1}\pi^+\pi^- K^0$	$(\ 3.2\ \pm\ 0.5\ ) \times 10^{-4}$	1318
$\chi_{c1}\pi^-\pi^0 K^+$	$(\ 3.5\ \pm\ 0.6\ ) \times 10^{-4}$	1321
$\chi_{c2} K^0$	$<\ 1.5\ \times 10^{-5}$ CL=90%	1379
$\chi_{c2} K^*(892)^0$	$(\ 4.9\ \pm\ 1.2\ ) \times 10^{-5}$ S=1.1	1228
$\chi_{c2}\pi^- K^+$	$(\ 7.2\ \pm\ 1.0\ ) \times 10^{-5}$	1338
$\chi_{c2}\pi^+\pi^- K^0$	$<\ 1.70\ \times 10^{-4}$ CL=90%	1282
$\chi_{c2}\pi^-\pi^0 K^+$	$<\ 7.4\ \times 10^{-5}$ CL=90%	1286
$\psi(4660) K^0$, $\psi \to \Lambda_c^+\Lambda_c^-$	$<\ 2.3\ \times 10^{-4}$ CL=90%	$-$
$\psi(4230)^0 K^0$, $\psi^0 \to J/\psi\pi^+\pi^-$	$<\ 1.7\ \times 10^{-5}$ CL=90%	$-$

K or K^* modes

$K^+\pi^-$	$(\ 2.00\pm\ 0.04) \times 10^{-5}$	2615
$K^0\pi^0$	$(\ 1.01\pm\ 0.04) \times 10^{-5}$	2615
$\eta' K^0$	$(\ 6.6\ \pm\ 0.4\ ) \times 10^{-5}$ S=1.4	2528
$\eta' K^*(892)^0$	$(\ 2.8\ \pm\ 0.6\ ) \times 10^{-6}$	2472
$\eta' K_0^*(1430)^0$	$(\ 6.3\ \pm\ 1.6\ ) \times 10^{-6}$	2346
$\eta' K_2^*(1430)^0$	$(\ 1.37\pm\ 0.32) \times 10^{-5}$	2346
ηK^0	$(\ 1.23{}^{+\ 0.27}_{-\ 0.24}) \times 10^{-6}$	2587
$\eta K^*(892)^0$	$(\ 1.59\pm\ 0.10) \times 10^{-5}$	2534
$\eta K_0^*(1430)^0$	$(\ 1.10\pm\ 0.22) \times 10^{-5}$	2415
$\eta K_2^*(1430)^0$	$(\ 9.6\ \pm\ 2.1\ ) \times 10^{-6}$	2414
ωK^0	$(\ 4.8\ \pm\ 0.4\ ) \times 10^{-6}$	2557
$a_0(980)^0 K^0$, $a_0^0 \to \eta\pi^0$	$<\ 7.8\ \times 10^{-6}$ CL=90%	$-$
$b_1^0 K^0$, $b_1^0 \to \omega\pi^0$	$<\ 7.8\ \times 10^{-6}$ CL=90%	$-$
$a_0(980)^\pm K^\mp$, $a_0^\pm \to \eta\pi^\pm$	$<\ 1.9\ \times 10^{-6}$ CL=90%	$-$
$b_1^- K^+$, $b_1^- \to \omega\pi^-$	$(\ 7.4\ \pm\ 1.4\ ) \times 10^{-6}$	$-$
$b_1^0 K^{*0}$, $b_1^0 \to \omega\pi^0$	$<\ 8.0\ \times 10^{-6}$ CL=90%	$-$
$b_1^- K^{*+}$, $b_1^- \to \omega\pi^-$	$<\ 5.0\ \times 10^{-6}$ CL=90%	$-$
$a_0(1450)^\pm K^\mp$, $a_0^\pm \to \eta\pi^\pm$	$<\ 3.1\ \times 10^{-6}$ CL=90%	$-$
$K_S^0 X^0$ (Familon)	$<\ 5.3\ \times 10^{-5}$ CL=90%	$-$
$\omega K^*(892)^0$	$(\ 2.0\ \pm\ 0.5\ ) \times 10^{-6}$	2503
$\omega (K\pi)_0^{*0}$	$(\ 1.84\pm\ 0.25) \times 10^{-5}$	$-$
$\omega K_0^*(1430)^0$	$(\ 1.60\pm\ 0.34) \times 10^{-5}$	2380
$\omega K_2^*(1430)^0$	$(\ 1.01\pm\ 0.23) \times 10^{-5}$	2380
$\omega K^+\pi^-$ nonresonant	$(\ 5.1\ \pm\ 1.0\ ) \times 10^{-6}$	2542
$K^+\pi^-\pi^0$	$(\ 3.78\pm\ 0.32) \times 10^{-5}$	2610
$K^+\rho^-$	$(\ 7.0\ \pm\ 0.9\ ) \times 10^{-6}$	2559

$K^+ \rho(1450)^-$		$(\ 2.4\ \pm\ 1.2\ )\times 10^{-6}$		–
$K^+ \rho(1700)^-$		$(\ 6\ \ \pm\ 7\ \ )\times 10^{-7}$		–
$(K^+\pi^-\pi^0)$ nonresonant		$(\ 2.8\ \pm\ 0.6\ )\times 10^{-6}$		2610
$(K\pi)_0^{*+}\pi^-,\ (K\pi)_0^{*+}\rightarrow$ $K^+\pi^0$		$(\ 3.4\ \pm\ 0.5\ )\times 10^{-5}$		–
$(K\pi)_0^{*0}\pi^0,\ (K\pi)_0^{*0}\rightarrow$ $K^+\pi^-$		$(\ 8.6\ \pm\ 1.7\ )\times 10^{-6}$		–
$K_2^*(1430)^0\pi^0$	$<$	$4.0\ \ \ \ \ \ \times 10^{-6}$	CL=90%	2445
$K^*(1680)^0\pi^0$	$<$	$7.5\ \ \ \ \ \ \times 10^{-6}$	CL=90%	2358
$K_x^{*0}\pi^0$	[i]	$(\ 6.1\ \pm\ 1.6\ )\times 10^{-6}$		–
$K^0\pi^+\pi^-$		$(\ 4.97\pm\ 0.18)\times 10^{-5}$		2609
$K^0\pi^+\pi^-$ nonresonant		$(\ 1.39^{+\ 0.26}_{-\ 0.18})\times 10^{-5}$	S=1.6	2609
$K^0\rho^0$		$(\ 3.4\ \pm\ 1.1\ )\times 10^{-6}$	S=2.3	2558
$K^*(892)^+\pi^-$		$(\ 7.5\ \pm\ 0.4\ )\times 10^{-6}$		2563
$K_0^*(1430)^+\pi^-$		$(\ 3.3\ \pm\ 0.7\ )\times 10^{-5}$	S=2.0	–
$K_x^{*+}\pi^-$	[i]	$(\ 5.1\ \pm\ 1.6\ )\times 10^{-6}$		–
$K^*(1410)^+\pi^-,\ K^{*+}\rightarrow$ $K^0\pi^+$	$<$	$3.8\ \ \ \ \ \ \times 10^{-6}$	CL=90%	–
$(K\pi)_0^{*+}\pi^-,\ (K\pi)_0^{*+}\rightarrow$ $K^0\pi^+$		$(\ 1.62\pm\ 0.13)\times 10^{-5}$		–
$f_0(980)K^0,\ f_0\rightarrow\ \pi^+\pi^-$		$(\ 8.1\ \pm\ 0.8\ )\times 10^{-6}$	S=1.3	2522
$K^0 f_0(500)$		$(\ 1.6\ ^{+\ 2.5}_{-\ 1.6}\ )\times 10^{-7}$		–
$K^0 f_0(1500)$		$(\ 1.3\ \pm\ 0.8\ )\times 10^{-6}$		2393
$f_2(1270)K^0$		$(\ 2.7\ ^{+\ 1.3}_{-\ 1.2}\ )\times 10^{-6}$		2459
$f_x(1300)K0, f_x\rightarrow\ \pi^+\pi^-$		$(\ 1.8\ \pm\ 0.7\ )\times 10^{-6}$		–
$K^*(892)^0\pi^0$		$(\ 3.3\ \pm\ 0.6\ )\times 10^{-6}$		2563
$K_2^*(1430)^+\pi^-$		$(\ 3.65\pm\ 0.34)\times 10^{-6}$		2445
$K^*(1680)^+\pi^-$		$(\ 1.41\pm\ 0.10)\times 10^{-5}$		2358
$K^+\pi^-\pi^+\pi^-$	[j] $<$	$2.3\ \ \ \ \ \ \times 10^{-4}$	CL=90%	2600
$\rho^0 K^+\pi^-$		$(\ 2.8\ \pm\ 0.7\ )\times 10^{-6}$		2543
$f_0(980)K^+\pi^-,\ f_0\rightarrow\ \pi\pi$		$(\ 1.4\ ^{+\ 0.5}_{-\ 0.6}\ )\times 10^{-6}$		2506
$K^+\pi^-\pi^+\pi^-$ nonresonant	$<$	$2.1\ \ \ \ \ \ \times 10^{-6}$	CL=90%	2600
$K^*(892)^0\pi^+\pi^-$		$(\ 5.5\ \pm\ 0.5\ )\times 10^{-5}$		2557
$K^*(892)^0\rho^0$		$(\ 3.9\ \pm\ 1.3\ )\times 10^{-6}$	S=1.9	2504
$K^*(892)^0 f_0(980),\ f_0\rightarrow\ \pi\pi$		$(\ 3.9\ ^{+\ 2.1}_{-\ 1.8}\ )\times 10^{-6}$	S=3.9	2466
$K_1(1270)^+\pi^-$	$<$	$3.0\ \ \ \ \ \ \times 10^{-5}$	CL=90%	2489
$K_1(1400)^+\pi^-$	$<$	$2.7\ \ \ \ \ \ \times 10^{-5}$	CL=90%	2451
$a_1(1260)^- K^+$	[j]	$(\ 1.6\ \pm\ 0.4\ )\times 10^{-5}$		2471
$K^*(892)^+\rho^-$		$(\ 1.03\pm\ 0.26)\times 10^{-5}$		2504
$K_0^*(1430)^+\rho^-$		$(\ 2.8\ \pm\ 1.2\ )\times 10^{-5}$		–
$K_1(1400)^0\rho^0$	$<$	$3.0\ \ \ \ \ \ \times 10^{-3}$	CL=90%	2388

$K^*_0(1430)^0 \rho^0$	$(2.7 \pm 0.6) \times 10^{-5}$			2381
$K^*_0(1430)^0 f_0(980), \ f_0 \to \pi\pi$	$(2.7 \pm 0.9) \times 10^{-6}$			–
$K^*_2(1430)^0 f_0(980), \ f_0 \to \pi\pi$	$(8.6 \pm 2.0) \times 10^{-6}$			–
$K^+ K^-$	$(7.8 \pm 1.5) \times 10^{-8}$			2593
$K^0 \overline{K}^0$	$(1.21 \pm 0.16) \times 10^{-6}$			2593
$K^0 K^- \pi^+$	$(6.7 \pm 0.5) \times 10^{-6}$			2578
$K^*(892)^\pm K^\mp$	$< 4 \times 10^{-7}$	CL=90%		2540
$\overline{K}^{*0} K^0 + K^{*0} \overline{K}^0$	$< 9.6 \times 10^{-7}$	CL=90%		–
$K^+ K^- \pi^0$	$(2.2 \pm 0.6) \times 10^{-6}$			2579
$K^0_S K^0_S \pi^0$	$< 9 \times 10^{-7}$	CL=90%		2578
$K^0_S K^0_S \eta$	$< 1.0 \times 10^{-6}$	CL=90%		2516
$K^0_S K^0_S \eta'$	$< 2.0 \times 10^{-6}$	CL=90%		2453
$K^0 K^+ K^-$	$(2.68 \pm 0.11) \times 10^{-5}$			2522
$K^0 \phi$	$(7.3 \pm 0.7) \times 10^{-6}$			2516
$f_0(980) K^0, \ f_0 \to K^+ K^-$	$(7.0 \ {}^{+\ 3.5}_{-\ 3.0}) \times 10^{-6}$			–
$f_0(1500) K^0$	$(1.3 \ {}^{+\ 0.7}_{-\ 0.5}) \times 10^{-5}$			2393
$f'_2(1525)^0 K^0$	$(3 \ {}^{+\ 5}_{-\ 4}) \times 10^{-7}$			–
$f_0(1710) K^0, \ f_0 \to K^+ K^-$	$(4.4 \pm 0.9) \times 10^{-6}$			–
$K^0 K^+ K^-$ nonresonant	$(3.3 \pm 1.0) \times 10^{-5}$			2522
$K^0_S K^0_S K^0_S$	$(6.0 \pm 0.5) \times 10^{-6}$	S=1.1		2521
$f_0(980) K^0, \ f_0 \to K^0_S K^0_S$	$(2.7 \pm 1.8) \times 10^{-6}$			–
$f_0(1710) K^0, \ f_0 \to K^0_S K^0_S$	$(5.0 \ {}^{+\ 5.0}_{-\ 2.6}) \times 10^{-7}$			–
$f_2(2010) K^0, \ f_2 \to K^0_S K^0_S$	$(5 \pm 6) \times 10^{-7}$			–
$K^0_S K^0_S K^0_S$ nonresonant	$(1.33 \pm 0.31) \times 10^{-5}$			2521
$K^0_S K^0_S K^0_L$	$< 1.6 \times 10^{-5}$	CL=90%		2521
$K^*(892)^0 K^+ K^-$	$(2.75 \pm 0.26) \times 10^{-5}$			2467
$K^*(892)^0 \phi$	$(1.00 \pm 0.05) \times 10^{-5}$			2460
$K^+ K^- \pi^+ \pi^-$ nonresonant	$< 7.17 \times 10^{-5}$	CL=90%		2559
$K^*(892)^0 K^- \pi^+$	$(4.5 \pm 1.3) \times 10^{-6}$			2524
$K^*(892)^0 \overline{K}^*(892)^0$	$(8.3 \pm 2.4) \times 10^{-7}$	S=1.5		2485
$K^+ K^+ \pi^- \pi^-$ nonresonant	$< 6.0 \times 10^{-6}$	CL=90%		2559
$K^*(892)^0 K^+ \pi^-$	$< 2.2 \times 10^{-6}$	CL=90%		2524
$K^*(892)^0 K^*(892)^0$	$< 2 \times 10^{-7}$	CL=90%		2485
$K^*(892)^+ K^*(892)^-$	$< 2.0 \times 10^{-6}$	CL=90%		2485
$K_1(1400)^0 \phi$	$< 5.0 \times 10^{-3}$	CL=90%		2340
$\phi(K\pi)^{*0}_0$	$(4.3 \pm 0.4) \times 10^{-6}$			–
$\phi(K\pi)^{*0}_0 \ (1.60 < m_{K\pi} < 2.15)$ [k]	$< 1.7 \times 10^{-6}$	CL=90%		–
$K^*_0(1430)^0 K^- \pi^+$	$< 3.18 \times 10^{-5}$	CL=90%		2404
$K^*_0(1430)^0 \overline{K}^*(892)^0$	$< 3.3 \times 10^{-6}$	CL=90%		2360
$K^*_0(1430)^0 \overline{K}^*_0(1430)^0$	$< 8.4 \times 10^{-6}$	CL=90%		2222

$K_0^*(1430)^0 \phi$		(3.9 $\pm$ 0.8) $\times 10^{-6}$			2333
$K_0^*(1430)^0 K^*(892)^0$	<	1.7	$\times 10^{-6}$	CL=90%	2360
$K_0^*(1430)^0 K_0^*(1430)^0$	<	4.7	$\times 10^{-6}$	CL=90%	2222
$K^*(1680)^0 \phi$	<	3.5	$\times 10^{-6}$	CL=90%	2238
$K^*(1780)^0 \phi$	<	2.7	$\times 10^{-6}$	CL=90%	–
$K^*(2045)^0 \phi$	<	1.53	$\times 10^{-5}$	CL=90%	–
$K_2^*(1430)^0 \rho^0$	<	1.1	$\times 10^{-3}$	CL=90%	2381
$K_2^*(1430)^0 \phi$		(6.8 $\pm$ 0.9) $\times 10^{-6}$		S=1.2	2332
$K^0 \phi \phi$		(3.7 $\pm$ 0.7) $\times 10^{-6}$		S=1.3	2305
$\eta' \eta' K^0$	<	3.1	$\times 10^{-5}$	CL=90%	2338
$\eta K^0 \gamma$		(7.6 $\pm$ 1.8) $\times 10^{-6}$			2587
$\eta' K^0 \gamma$	<	6.4	$\times 10^{-6}$	CL=90%	2528
$K^0 \phi \gamma$		(2.7 $\pm$ 0.7) $\times 10^{-6}$			2516
$K^+ \pi^- \gamma$		(4.6 $\pm$ 1.4) $\times 10^{-6}$			2615
$K^*(892)^0 \gamma$		(4.18 $\pm$ 0.25) $\times 10^{-5}$		S=2.1	2565
$K^*(1410) \gamma$	<	1.3	$\times 10^{-4}$	CL=90%	2451
$K^+ \pi^- \gamma$ nonresonant	<	2.6	$\times 10^{-6}$	CL=90%	2615
$K^*(892)^0 X(214),\ X \to$ $\mu^+ \mu^-$	[*l*] <	2.26	$\times 10^{-8}$	CL=90%	–
$K^0 \pi^+ \pi^- \gamma$		(1.99 $\pm$ 0.18) $\times 10^{-5}$			2609
$K^+ \pi^- \pi^0 \gamma$		(4.1 $\pm$ 0.4) $\times 10^{-5}$			2610
$K_1(1270)^0 \gamma$	<	5.8	$\times 10^{-5}$	CL=90%	2491
$K_1(1400)^0 \gamma$	<	1.2	$\times 10^{-5}$	CL=90%	2454
$K_2^*(1430)^0 \gamma$		(1.24 $\pm$ 0.24) $\times 10^{-5}$			2447
$K^*(1680)^0 \gamma$	<	2.0	$\times 10^{-3}$	CL=90%	2360
$K_3^*(1780)^0 \gamma$	<	8.3	$\times 10^{-5}$	CL=90%	2340
$K_4^*(2045)^0 \gamma$	<	4.3	$\times 10^{-3}$	CL=90%	2243

Light unflavored meson modes

$\rho^0 \gamma$		(8.6 $\pm$ 1.5) $\times 10^{-7}$			2583
$\rho^0 X(214),\ X \to \mu^+ \mu^-$	[*l*] <	1.73	$\times 10^{-8}$	CL=90%	–
$\omega \gamma$		(4.4 $^{+\ 1.8}_{-\ 1.6}$) $\times 10^{-7}$			2582
$\phi \gamma$	<	1.0	$\times 10^{-7}$	CL=90%	2541
$f_2(1270) \gamma,\ f_2 \to$ $(KS)^0 (KS)^0$	<	3.1	$\times 10^{-7}$		–
$f_2'(1525) \gamma,\ f_2' \to$ $(KS)^0 (KS)^0$	<	2.1	$\times 10^{-7}$		–
$\pi^+ \pi^-$		(5.37 $\pm$ 0.20) $\times 10^{-6}$		S=1.3	2636
$\pi^0 \pi^0$		(1.55 $\pm$ 0.17) $\times 10^{-6}$		S=1.1	2636
$\eta \pi^0$		(4.1 $\pm$ 1.7) $\times 10^{-7}$			2610
$\eta \eta$	<	1.0	$\times 10^{-6}$	CL=90%	2582
$\eta' \pi^0$		(1.2 $\pm$ 0.6) $\times 10^{-6}$		S=1.7	2551
$\eta' \eta'$	<	1.7	$\times 10^{-6}$	CL=90%	2460

$\eta'\eta$		<	1.2	$\times 10^{-6}$ CL=90%	2523
$\eta'\rho^0$		<	1.3	$\times 10^{-6}$ CL=90%	2492
$\eta' f_0(980),\ f_0 \to\ \pi^+\pi^-$		<	9	$\times 10^{-7}$ CL=90%	2454
$\eta\rho^0$		<	1.5	$\times 10^{-6}$ CL=90%	2553
$\eta f_0(980),\ f_0 \to\ \pi^+\pi^-$		<	4	$\times 10^{-7}$ CL=90%	2516
$\omega\eta$		(	$9.4\ {+\ 4.0 \atop -\ 3.1}$	$) \times 10^{-7}$	2552
$\omega\eta'$		(	$1.0\ {+\ 0.5 \atop -\ 0.4}$	$) \times 10^{-6}$	2491
$\omega\rho^0$		<	1.6	$\times 10^{-6}$ CL=90%	2522
$\omega f_0(980),\ f_0 \to\ \pi^+\pi^-$		<	1.5	$\times 10^{-6}$ CL=90%	2485
$\omega\omega$		(	$1.2\ \pm\ 0.4$	$) \times 10^{-6}$	2521
$\phi\pi^0$		<	1.5	$\times 10^{-7}$ CL=90%	2540
$\phi\eta$		<	5	$\times 10^{-7}$ CL=90%	2511
$\phi\eta'$		<	5	$\times 10^{-7}$ CL=90%	2448
$\phi\pi^+\pi^-$		(	$1.8\ \pm\ 0.5$	$) \times 10^{-7}$	2533
$\phi\rho^0$		<	3.3	$\times 10^{-7}$ CL=90%	2480
$\phi f_0(980),\ f_0 \to\ \pi^+\pi^-$		<	3.8	$\times 10^{-7}$ CL=90%	2441
$\phi\omega$		<	7	$\times 10^{-7}$ CL=90%	2479
$\phi\phi$		<	2.7	$\times 10^{-8}$ CL=90%	2435
$a_0(980)^\pm\pi^\mp,\ a_0^\pm \to\ \eta\pi^\pm$		<	3.1	$\times 10^{-6}$ CL=90%	—
$a_0(1450)^\pm\pi^\mp,\ a_0^\pm \to\ \eta\pi^\pm$		<	2.3	$\times 10^{-6}$ CL=90%	—
$\pi^+\pi^-\pi^0$		<	7.2	$\times 10^{-4}$ CL=90%	2631
$\rho^0\pi^0$		(	$2.0\ \pm\ 0.5$	$) \times 10^{-6}$	2581
$\rho^\mp\pi^\pm$	[n]	(	$2.30\pm\ 0.23$	$) \times 10^{-5}$	2581
$\pi^+\pi^-\pi^+\pi^-$		<	1.12	$\times 10^{-5}$ CL=90%	2621
$\rho^0\pi^+\pi^-$		<	8.8	$\times 10^{-6}$ CL=90%	2575
$\rho^0\rho^0$		(	$9.6\ \pm\ 1.5$	$) \times 10^{-7}$	2523
$f_0(980)\pi^+\pi^-,\ f_0 \to\ \pi^+\pi^-$		<	3.0	$\times 10^{-6}$ CL=90%	—
$\rho^0 f_0(980),\ f_0 \to\ \pi^+\pi^-$		(	$7.8\ \pm\ 2.5$	$) \times 10^{-7}$	2486
$f_0(980)f_0(980),\ f_0 \to\ \pi^+\pi^-,\ f_0 \to\ \pi^+\pi^-$		<	1.9	$\times 10^{-7}$ CL=90%	2447
$f_0(980)f_0(980),\ f_0 \to\ \pi^+\pi^-,\ f_0 \to\ K^+K^-$		<	2.3	$\times 10^{-7}$ CL=90%	2447
$a_1(1260)^\mp\pi^\pm$	[n]	(	$2.6\ \pm\ 0.5$	$) \times 10^{-5}$ S=1.9	2495
$a_2(1320)^\mp\pi^\pm$	[n] <		6.3	$\times 10^{-6}$ CL=90%	2473
$\pi^+\pi^-\pi^0\pi^0$		<	3.1	$\times 10^{-3}$ CL=90%	2622
$\rho^+\rho^-$		(	$2.77\pm\ 0.19$	$) \times 10^{-5}$	2523
$a_1(1260)^0\pi^0$		<	1.1	$\times 10^{-3}$ CL=90%	2495
$\omega\pi^0$		<	5	$\times 10^{-7}$ CL=90%	2580
$\pi^+\pi^+\pi^-\pi^-\pi^0$		<	9.0	$\times 10^{-3}$ CL=90%	2609
$a_1(1260)^+\rho^-$		<	6.1	$\times 10^{-5}$ CL=90%	2433
$a_1(1260)^0\rho^0$		<	2.4	$\times 10^{-3}$ CL=90%	2433
$b_1^\mp\pi^\pm,\ b_1^\mp \to\ \omega\pi^\mp$		(	$1.09\pm\ 0.15$	$) \times 10^{-5}$	—

$b_1^0 \pi^0$, $b_1^0 \to \omega \pi^0$	<	1.9	$\times 10^{-6}$ CL=90%	–
$b_1^- \rho^+$, $b_1^- \to \omega \pi^-$	<	1.4	$\times 10^{-6}$ CL=90%	–
$b_1^0 \rho^0$, $b_1^0 \to \omega \pi^0$	<	3.4	$\times 10^{-6}$ CL=90%	–
$\pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$	<	3.0	$\times 10^{-3}$ CL=90%	2592
$\quad a_1(1260)^+ a_1(1260)^-$, $a_1^+ \to$	(	1.18± 0.31)	$\times 10^{-5}$	2336
$\quad\quad 2\pi^+ \pi^-$, $a_1^- \to 2\pi^- \pi^+$				
$\pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^0$	<	1.1	% CL=90%	2572

Baryon modes

$p\overline{p}$	(	1.27± 0.14)	$\times 10^{-8}$	2467
$p\overline{p}\pi^+ \pi^-$	(	2.87± 0.19)	$\times 10^{-6}$	2406
$p\overline{p}K^+ \pi^-$	(	6.3 ± 0.5)	$\times 10^{-6}$	2306
$p\overline{p}K^0$	(	2.66± 0.32)	$\times 10^{-6}$	2347
$\quad \Theta(1540)^+ \overline{p}$, $\Theta^+ \to pK_S^0$	[o] < 5		$\times 10^{-8}$ CL=90%	2318
$\quad f_J(2220)K^0$, $f_J \to p\overline{p}$	<	4.5	$\times 10^{-7}$ CL=90%	2135
$p\overline{p}K^*(892)^0$	(	1.24$^{+ 0.28}_{- 0.25}$)	$\times 10^{-6}$	2216
$\quad f_J(2220)K_0^*$, $f_J \to p\overline{p}$	<	1.5	$\times 10^{-7}$ CL=90%	–
$p\overline{p}K^+ K^-$	(	1.21± 0.32)	$\times 10^{-7}$	2179
$p\overline{p}\pi^0$	(	5.0 ± 1.9)	$\times 10^{-7}$	2440
$p\overline{p}p\overline{p}$	(	2.2 ± 0.4)	$\times 10^{-8}$	1735
$p\overline{\Lambda}\pi^-$	(	3.16± 0.24)	$\times 10^{-6}$	2401
$p\overline{\Lambda}\pi^- \gamma$	<	6.5	$\times 10^{-7}$ CL=90%	2401
$p\overline{\Sigma}(1385)^-$	<	2.6	$\times 10^{-7}$ CL=90%	2363
$\Delta(1232)^+ \overline{p} + \Delta(1232)^- p$	<	1.6	$\times 10^{-6}$	–
$\Delta^0 \overline{\Lambda}$	<	9.3	$\times 10^{-7}$ CL=90%	2364
$p\overline{\Lambda}K^-$	<	8.2	$\times 10^{-7}$ CL=90%	2308
$p\overline{\Lambda}D^-$	(	2.5 ± 0.4)	$\times 10^{-5}$	1765
$p\overline{\Lambda}D^{*-}$	(	3.4 ± 0.8)	$\times 10^{-5}$	1685
$p\overline{\Sigma}^0 \pi^-$	(	1.2 ± 0.4)	$\times 10^{-6}$	2383
$\overline{\Lambda}\Lambda$	<	3.2	$\times 10^{-7}$ CL=90%	2393
$\overline{\Lambda}\Lambda K^0$	(	4.8 $^{+ 1.0}_{- 0.9}$)	$\times 10^{-6}$	2250
$\overline{\Lambda}\Lambda K^{*0}$	(	2.5 $^{+ 0.9}_{- 0.8}$)	$\times 10^{-6}$	2098
$\overline{\Lambda}\Lambda D^0$	(	1.00$^{+ 0.30}_{- 0.26}$)	$\times 10^{-5}$	1662
$D^0 \Sigma^0 \overline{\Lambda} +$ c.c.	<	3.1	$\times 10^{-5}$ CL=90%	1611
$\Delta^0 \overline{\Delta}^0$	<	1.5	$\times 10^{-3}$ CL=90%	2335
$\Delta^{++} \overline{\Delta}^{--}$	<	1.1	$\times 10^{-4}$ CL=90%	2335
$\overline{D}^0 p\overline{p}$	(	1.04± 0.07)	$\times 10^{-4}$	1863
$D_s^- \overline{\Lambda}p$	(	2.8 ± 0.9)	$\times 10^{-5}$	1710
$\overline{D}^*(2007)^0 p\overline{p}$	(	9.9 ± 1.1)	$\times 10^{-5}$	1788
$D^*(2010)^- p\overline{n}$	(	1.4 ± 0.4)	$\times 10^{-3}$	1785
$D^- p\overline{p}\pi^+$	(	3.32± 0.31)	$\times 10^{-4}$	1786

$D^*(2010)^- p \overline{p} \pi^+$	(4.7 $\pm$ 0.5) $\times 10^{-4}$	S=1.2	1708
$\overline{D}^0 p \overline{p} \pi^+ \pi^-$	(3.0 $\pm$ 0.5) $\times 10^{-4}$		1708
$\overline{D}^{*0} p \overline{p} \pi^+ \pi^-$	(1.9 $\pm$ 0.5) $\times 10^{-4}$		1623
$\Theta_c \overline{p} \pi^+, \ \Theta_c \to \ D^- p$	< 9 $\times 10^{-6}$	CL=90%	–
$\Theta_c \overline{p} \pi^+, \ \Theta_c \to \ D^{*-} p$	< 1.4 $\times 10^{-5}$	CL=90%	–
$\overline{\Sigma}_c^{--} \Delta^{++}$	< 8 $\times 10^{-4}$	CL=90%	1839
$\overline{\Lambda}_c^- p \pi^+ \pi^-$	(1.02$\pm$ 0.14) $\times 10^{-3}$	S=1.3	1934
$\overline{\Lambda}_c^- p$	(1.55$\pm$ 0.17) $\times 10^{-5}$		2021
$\overline{\Lambda}_c^- p \pi^0$	(1.55$\pm$ 0.18) $\times 10^{-4}$		1982
$\Sigma_c(2455)^- p$	< 2.4 $\times 10^{-5}$		–
$\overline{\Lambda}_c^- p \pi^+ \pi^- \pi^0$	< 5.07 $\times 10^{-3}$	CL=90%	1883
$\overline{\Lambda}_c^- p \pi^+ \pi^- \pi^+ \pi^-$	< 2.74 $\times 10^{-3}$	CL=90%	1821
$\overline{\Lambda}_c^- p \pi^+ \pi^-$ (nonresonant)	(5.5 $\pm$ 1.0) $\times 10^{-4}$	S=1.3	1934
$\overline{\Sigma}_c(2520)^{--} p \pi^+$	(1.02$\pm$ 0.18) $\times 10^{-4}$		1860
$\overline{\Sigma}_c(2520)^0 p \pi^-$	< 3.1 $\times 10^{-5}$	CL=90%	1860
$\overline{\Sigma}_c(2455)^0 p \pi^-$	(1.08$\pm$ 0.09) $\times 10^{-4}$		1895
$\overline{\Sigma}_c(2455)^0 N^0, \ N^0 \to$ $p \pi^-$	(6.4 $\pm$ 1.7) $\times 10^{-5}$		–
$\overline{\Sigma}_c(2455)^{--} p \pi^+$	(1.89$\pm$ 0.15) $\times 10^{-4}$		1895
$\Lambda_c^- p K^+ \pi^-$	(3.5 $\pm$ 0.7) $\times 10^{-5}$		1786
$\overline{\Sigma}_c(2455)^{--} p K^+, \ \overline{\Sigma}_c^{--} \to$ $\overline{\Lambda}_c^- \pi^-$	(8.9 $\pm$ 2.6) $\times 10^{-6}$		1754
$\Lambda_c^- p K^*(892)^0$	< 2.42 $\times 10^{-5}$	CL=90%	1647
$\Lambda_c^- p K^+ K^-$	(2.0 $\pm$ 0.4) $\times 10^{-5}$		1588
$\Lambda_c^- p \phi$	< 1.0 $\times 10^{-5}$	CL=90%	1567
$\Lambda_c^- p \overline{p} p$	< 2.8 $\times 10^{-6}$		677
$\overline{\Lambda}_c^- \Lambda K^+$	(4.8 $\pm$ 1.1) $\times 10^{-5}$		1767
$\overline{\Lambda}_c^- \Lambda_c^+$	< 1.6 $\times 10^{-5}$	CL=95%	1319
$\overline{\Lambda}_c(2593)^- \ / \ \overline{\Lambda}_c(2625)^- p$	< 1.1 $\times 10^{-4}$	CL=90%	–
$\Xi_c^- \Lambda_c^+$	(1.2 $\pm$ 0.8) $\times 10^{-3}$		1147
$\Xi_c^- \Lambda_c^+, \ \Xi_c^- \to \ \Xi^+ \pi^- \pi^-$	(2.4 $\pm$ 1.1) $\times 10^{-5}$	S=1.8	1147
$\Xi_c^- \Lambda_c^+, \ \Xi_c^- \to \ \overline{p} K^+ \pi^-$	(5.3 $\pm$ 1.7) $\times 10^{-6}$		–
$\Lambda_c^+ \Lambda_c^- K^0$	(4.0 $\pm$ 0.9) $\times 10^{-4}$		732
$\overline{\Lambda}_c(2910)^- p, \ \overline{\Lambda}_c^- \to$ $\overline{\Sigma}_c(2455)^{--} \pi^+$	(1.2 $\pm$ 0.4) $\times 10^{-5}$		–
$\overline{\Lambda}_c(2910)^- p, \ \overline{\Lambda}_c^- \to$ $\overline{\Sigma}_c(2455)^0 \pi^-$	(10 $\pm$ 4) $\times 10^{-6}$		–
$\Xi_c(2930)^- \Lambda_c^+, \ \overline{\Xi}_c^- \to \ \Lambda_c^- K^0$	(2.4 $\pm$ 0.6) $\times 10^{-4}$		–
$\Lambda \psi_{DS}$	[p] < 0.13–5.2 $\times 10^{-5}$		–

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

$\gamma\gamma$	B1		<	3.2	$\times 10^{-7}$ CL=90%	2640
e^+e^-	B1		<	2.5	$\times 10^{-9}$ CL=90%	2640
$e^+e^-\gamma$	B1		<	1.2	$\times 10^{-7}$ CL=90%	2640
$\mu^+\mu^-$	B1		<	1.5	$\times 10^{-10}$ CL=90%	2638
$\mu^+\mu^-\mu^+\mu^-$	B1		<	1.8	$\times 10^{-10}$ CL=95%	2629
SP, $S \to \mu^+\mu^-$, $P \to \mu^+\mu^-$	B1	[q]	<	6.0	$\times 10^{-10}$ CL=95%	–
aa, $a \to \mu^+\mu^-$	B1		<	2.3	$\times 10^{-10}$ CL=95%	–
$\tau^+\tau^-$	B1		<	2.1	$\times 10^{-3}$ CL=95%	1952
$\pi^0\ell^+\ell^-$	B1	[a] <		5.3	$\times 10^{-8}$ CL=90%	2638
$\pi^0 e^+e^-$	B1		<	8.4	$\times 10^{-8}$ CL=90%	2638
$\pi^0\mu^+\mu^-$	B1		<	6.9	$\times 10^{-8}$ CL=90%	2634
$\eta\ell^+\ell^-$	B1	[a] <		6.4	$\times 10^{-8}$ CL=90%	2611
ηe^+e^-	B1		<	1.08	$\times 10^{-7}$ CL=90%	2611
$\eta\mu^+\mu^-$	B1		<	1.12	$\times 10^{-7}$ CL=90%	2607
$\pi^0\nu\overline{\nu}$	B1		<	9	$\times 10^{-6}$ CL=90%	2638
$K^0\ell^+\ell^-$	B1	[a]	(	3.3 ± 0.6) $\times 10^{-7}$		2616
$K^0 e^+e^-$	B1		(	$2.5 {\,}^{+\,1.1}_{-\,0.9}$) $\times 10^{-7}$	S=1.3	2616
$K^0\mu^+\mu^-$	B1		(	3.39 ± 0.35) $\times 10^{-7}$	S=1.1	2612
$K^0\nu\overline{\nu}$	B1		<	2.6	$\times 10^{-5}$ CL=90%	2616
$\rho^0\nu\overline{\nu}$	B1		<	4.0	$\times 10^{-5}$ CL=90%	2583
$K^*(892)^0\ell^+\ell^-$	B1	[a]	(	$9.9 {\,}^{+\,1.2}_{-\,1.1}$) $\times 10^{-7}$		2565
$K^*(892)^0 e^+e^-$	B1		(	$1.03 {\,}^{+\,0.19}_{-\,0.17}$) $\times 10^{-6}$		2565
$K^*(892)^0\mu^+\mu^-$	B1		(	9.4 ± 0.5) $\times 10^{-7}$		2560
$K^*(892)^0\tau^+\tau^-$	B1		<	3.1	$\times 10^{-3}$ CL=90%	1404
$\pi^+\pi^-\mu^+\mu^-$	B1		(	2.1 ± 0.5) $\times 10^{-8}$		2626
$K^*(892)^0\nu\overline{\nu}$	B1		<	1.8	$\times 10^{-5}$ CL=90%	2565
invisible	B1		<	2.4	$\times 10^{-5}$ CL=90%	–
$\nu\overline{\nu}\gamma$	B1		<	1.6	$\times 10^{-5}$ CL=90%	2640
$\phi\mu^+\mu^-$	B1		<	3.2	$\times 10^{-9}$ CL=90%	2537
$\phi\nu\overline{\nu}$	B1		<	1.27	$\times 10^{-4}$ CL=90%	2541
$e^\pm\mu^\mp$	LF	[n]	<	1.0	$\times 10^{-9}$ CL=90%	2639
$\pi^0 e^\pm\mu^\mp$	LF		<	1.4	$\times 10^{-7}$ CL=90%	2637
$K^0 e^\pm\mu^\mp$	LF		<	3.8	$\times 10^{-8}$ CL=90%	2615
$K^*(892)^0 e^+\mu^-$	LF		<	6.8	$\times 10^{-9}$ CL=90%	2563
$K^*(892)^0 e^-\mu^+$	LF		<	5.7	$\times 10^{-9}$ CL=90%	2563
$K^*(892)^0 e^\pm\mu^\mp$	LF		<	1.01	$\times 10^{-8}$ CL=90%	2563
$K^*(892)^0\tau^+\mu^-$	LF		<	1.0	$\times 10^{-5}$ CL=90%	2221
$K^*(892)^0\tau^-\mu^+$	LF		<	8.2	$\times 10^{-6}$ CL=90%	2221
$e^\pm\tau^\mp$	LF	[n]	<	1.6	$\times 10^{-5}$ CL=90%	2341

$\mu^{\pm}\tau^{\mp}$	LF	[n] <	1.4	$\times 10^{-5}$ CL=95%	2340
$p\mu^-$	L,B	<	2.6	$\times 10^{-9}$ CL=90%	2555
$\Lambda_c^+ \mu^-$	L,B	<	1.4	$\times 10^{-6}$ CL=90%	2143
$\Lambda_c^+ e^-$	L,B	<	4	$\times 10^{-6}$ CL=90%	2145

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

CP violation

$A_{CP}(B \to K^*(892)\gamma) = -0.003 \pm 0.011$

$A_{CP}(B \to s\gamma) = 0.015 \pm 0.011$

$A_{CP}(B \to (s+d)\gamma) = 0.010 \pm 0.031$

$A_{CP}(B \to X_s \ell^+ \ell^-) = 0.04 \pm 0.11$

$A_{CP}(B \to X_s \ell^+ \ell^-)\ (1.0 < q^2 < 6.0\ \text{GeV}^2/c^4) = -0.06 \pm 0.22$

$A_{CP}(B \to X_s \ell^+ \ell^-)\ (10.1 < q^2 < 12.9\ \text{or}\ q^2 > 14.2\ \text{GeV}^2/c^4)$
    $= 0.19 \pm 0.18$

$A_{CP}(B \to K^* e^+ e^-) = -0.18 \pm 0.15$

$A_{CP}(B \to K^* \mu^+ \mu^-) = -0.03 \pm 0.13$

$A_{CP}(B \to K^* \ell^+ \ell^-) = -0.04 \pm 0.07$

$A_{CP}(B \to \eta\,\text{anything}) = -0.13^{+0.04}_{-0.05}$

$\Delta A_{CP}(X_s\gamma) = A_{CP}(B^{\pm} \to X_s\gamma) - A_{CP}(B^0 \to X_s\gamma) =$
    0.041 ± 0.023

$\overline{A}_{CP}(B \to X_s\gamma) = (A_{CP}(B^+ \to X_s\gamma) + A_{CP}(B^0 \to X_s\gamma))/2 = 0.009 \pm 0.012$

$\Delta A_{CP}(B \to K^*\gamma) = A_{CP}(B^+ \to K^{*+}\gamma) - A_{CP}(B^0 \to K^{*0}\gamma) = 0.024 \pm 0.028$

$\overline{A}_{CP}(B \to K^*\gamma) = (A_{CP}(B^+ \to K^{*+}\gamma) + A_{CP}(B^0 \to K^{*0}\gamma))/2 = -0.001 \pm 0.014$

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%.

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.

B DECAY MODES		Fraction (Γ_i/Γ)		Scale factor/ Confidence level	p (MeV/c)

Semileptonic and leptonic modes

B DECAY MODES		Fraction (Γ_i/Γ)		Scale factor/ Confidence level	p (MeV/c)
$\ell^+ \nu_\ell$ anything	[a,r]	(10.82 $\pm$ 0.15) %			–
$D^- \ell^+ \nu_\ell$ anything	[a]	(2.6 $\pm$ 0.5) %			–
$\overline{D}^0 \ell^+ \nu_\ell$ anything	[a]	(7.2 $\pm$ 1.5) %			–
$\overline{D} \ell^+ \nu_\ell$		(2.41 $\pm$ 0.12) %			2311
$D^{*-} \ell^+ \nu_\ell$ anything	[s]	(6.7 $\pm$ 1.3) $\times 10^{-3}$			–
$\overline{D}^* \ell^+ \nu_\ell$	[t]	(4.95 $\pm$ 0.11) %			2257
$\overline{D}^{**} \ell^+ \nu_\ell$	[a,u]	(2.7 $\pm$ 0.7) %			–
$\overline{D}_1(2420) \ell^+ \nu_\ell$ anything		(3.8 $\pm$ 1.3) $\times 10^{-3}$		S=2.4	–
$\overline{D} \pi \ell^+ \nu_\ell$ anything + $\overline{D}^* \pi \ell^+ \nu_\ell$ anything		(2.6 $\pm$ 0.5) %		S=1.5	–
$\overline{D} \pi \ell^+ \nu_\ell$ anything		(1.5 $\pm$ 0.6) %			–
$\overline{D}^* \pi \ell^+ \nu_\ell$ anything		(1.9 $\pm$ 0.4) %			–
$\overline{D}_2^*(2460) \ell^+ \nu_\ell$ anything		(4.4 $\pm$ 1.6) $\times 10^{-3}$			–
$D^{*-} \pi^+ \ell^+ \nu_\ell$ anything		(1.00 $\pm$ 0.34) %			–
$\overline{D} \pi^+ \pi^- \ell^+ \nu_\ell$		(1.62 $\pm$ 0.32) $\times 10^{-3}$			2301
$\overline{D}^* \pi^+ \pi^- \ell^+ \nu_\ell$		(9.4 $\pm$ 3.2) $\times 10^{-4}$			2247
$D_s^- \ell^+ \nu_\ell$ anything	[a]	< 7 $\times 10^{-3}$		CL=90%	–
$D_s^- \ell^+ \nu_\ell K^+$ anything	[a]	< 5 $\times 10^{-3}$		CL=90%	–
$D_s^- \ell^+ \nu_\ell K^0$ anything	[a]	< 7 $\times 10^{-3}$		CL=90%	–
$X_c \ell^+ \nu_\ell$		(10.63 $\pm$ 0.15) %			–
$X_u \ell^+ \nu_\ell$		(1.88 $\pm$ 0.27) $\times 10^{-3}$			–
$X_u e^+ \nu_e$		(1.57 $\pm$ 0.19) $\times 10^{-3}$			–
$X_u \mu^+ \nu_\mu$		(1.62 $\pm$ 0.21) $\times 10^{-3}$			–
$K^+ \ell^+ \nu_\ell$ anything	[a]	(6.3 $\pm$ 0.5) %			–
$K^- \ell^+ \nu_\ell$ anything	[a]	(10 $\pm$ 4) $\times 10^{-3}$			–
$K^0/\overline{K}^0 \ell^+ \nu_\ell$ anything	[a]	(4.6 $\pm$ 0.5) %			–
$\overline{D} \tau^+ \nu_\tau$		(8.6 $\pm$ 0.8) $\times 10^{-3}$			1911
$\overline{D}^* \tau^+ \nu_\tau$		(1.40 $\pm$ 0.07) %			1838

D, D^*, or D_s modes

B DECAY MODES		Fraction (Γ_i/Γ)		Scale factor/ Confidence level	p (MeV/c)
$D^\pm$ anything		(23.1 $\pm$ 1.2) %			–
$D^0/\overline{D}^0$ anything		(64.6 $\pm$ 2.1) %		S=1.5	–
$D^*(2010)^\pm$ anything		(22.5 $\pm$ 1.5) %			–
$\overline{D}^*(2007)^0$ anything		(26.0 $\pm$ 2.7) %			–
$D_s^\pm$ anything	[n]	(10.6 $\pm$ 0.6) %		S=1.7	–
$D_s^{*\pm}$ anything		(6.3 $\pm$ 1.0) %			–

$D_s^{*\pm}\overline{D}^{(*)}$		(3.4 ± 0.6) %		−
$\overline{D}\,D_{s0}(2317)$		seen		1605
$\overline{D}\,D_{sJ}(2457)$		seen		−
$D^{(*)}\overline{D}^{(*)}K^0 +$ $D^{(*)}\overline{D}^{(*)}K^\pm$	[n,v]	($7.1\ {}^{+\ 2.7}_{-\ 1.7}$) %		−
$b \to c\overline{c}s$		(22 ± 4) %		−
$D_s^{(*)}\overline{D}^{(*)}$	[n,v]	(5.0 ± 0.4) %		−
$D^* D^*(2010)^\pm$	[n] <	5.9	$\times 10^{-3}$ CL=90%	1711
$D D^*(2010)^\pm + D^* D^\pm$	[n] <	5.5	$\times 10^{-3}$ CL=90%	−
$D D^\pm$	[n] <	3.1	$\times 10^{-3}$ CL=90%	1866
$D_s^{(*)\pm}\overline{D}^{(*)}X(n\pi^\pm)$	[n,v]	($9\ {}^{+\ 5}_{-\ 4}$) %		−
$\overline{D}^*(2010)\gamma$	<	1.1	$\times 10^{-3}$ CL=90%	2257
$D_s^+\pi^-,\ D_s^{*+}\pi^-,\ D_s^+\rho^-,$ $D_s^{*+}\rho^-,\ D_s^+\pi^0,\ D_s^{*+}\pi^0,$ $D_s^+\eta,\ D_s^{*+}\eta,\ D_s^+\rho^0,$ $D_s^{*+}\rho^0,\ D_s^+\omega,\ D_s^{*+}\omega$	[n] <	4	$\times 10^{-4}$ CL=90%	−
$D_{s1}(2536)^+$ anything	<	9.5	$\times 10^{-3}$ CL=90%	−

Charmonium modes

$J/\psi(1S)$ anything		(1.094 ± 0.032) %	S=1.1	−
$J/\psi(1S)$ (direct) anything		(7.8 ± 0.4) $\times 10^{-3}$	S=1.1	−
$\psi(2S)$ anything		(3.07 ± 0.21) $\times 10^{-3}$		−
$\chi_{c1}(1P)$ anything		(3.55 ± 0.27) $\times 10^{-3}$	S=1.3	−
$\chi_{c1}(1P)$ (direct) anything		(3.08 ± 0.19) $\times 10^{-3}$		−
$\chi_{c2}(1P)$ anything		(9.9 ± 1.7) $\times 10^{-4}$	S=1.6	−
$\chi_{c2}(1P)$ (direct) anything		(7.5 ± 1.1) $\times 10^{-4}$		−
$\eta_c(1S)$ anything	<	9	$\times 10^{-3}$ CL=90%	−
$K\chi_{c1}(3872)$		(2.5 ± 0.9) $\times 10^{-4}$		1141
$K X(3940),\ X \to D^{*0} D^0$	<	6.7	$\times 10^{-5}$ CL=90%	1084
$K\chi_{c0}(3915),\ \chi_{c0} \to \omega J/\psi$	[x]	(7.1 ± 3.4) $\times 10^{-5}$		1103

K or K* modes

$K^\pm$ anything	[n]	(78.9 ± 2.5) %		−
K^+ anything		(66 ± 5) %		−
K^- anything		(13 ± 4) %		−
$K^0/\overline{K}^0$ anything	[n]	(64 ± 4) %		−
$K^*(892)^\pm$ anything		(18 ± 6) %		−
$K^*(892)^0/\overline{K}^*(892)^0$ anything	[n]	(14.6 ± 2.6) %		−
$K^*(892)\gamma$		(4.2 ± 0.6) $\times 10^{-5}$		2565
$\eta K\gamma$		($8.5\ {}^{+\ 1.8}_{-\ 1.6}$) $\times 10^{-6}$		2588
$K_1(1400)\gamma$	<	1.27	$\times 10^{-4}$ CL=90%	2454
$K_2^*(1430)\gamma$		($1.7\ {}^{+\ 0.6}_{-\ 0.5}$) $\times 10^{-5}$		2447

$K_2(1770)\gamma$		<	1.2	$\times 10^{-3}$	CL=90%	2342
$K_3^*(1780)\gamma$		<	3.7	$\times 10^{-5}$	CL=90%	2340
$K_4^*(2045)\gamma$		<	1.0	$\times 10^{-3}$	CL=90%	2243
$K\eta'(958)$		(	8.3 $\pm$ 1.1	$) \times 10^{-5}$		2528
$K^*(892)\eta'(958)$		(	4.1 $\pm$ 1.1	$) \times 10^{-6}$		2472
$K\eta$		<	5.2	$\times 10^{-6}$	CL=90%	2588
$K^*(892)\eta$		(	1.8 $\pm$ 0.5	$) \times 10^{-5}$		2534
$K\phi\phi$		(	2.3 $\pm$ 0.9	$) \times 10^{-6}$		2306
$\overline{b} \to \overline{s}\gamma$		(	3.49 $\pm$ 0.19	$) \times 10^{-4}$		–
$\overline{b} \to \overline{d}\gamma$		(	9.2 $\pm$ 3.0	$) \times 10^{-6}$		–
$\overline{b} \to \overline{s}$gluon		<	6.8	%	CL=90%	–
η anything		(	2.6 $^{+\,0.5}_{-\,0.8}$	$) \times 10^{-4}$		–
η' anything		(	4.2 $\pm$ 0.9	$) \times 10^{-4}$		–
K^+ gluon (charmless)		<	1.87	$\times 10^{-4}$	CL=90%	–
K^0 gluon (charmless)		(	1.9 $\pm$ 0.7	$) \times 10^{-4}$		–

Light unflavored meson modes

$\rho\gamma$		(	1.39 $\pm$ 0.25	$) \times 10^{-6}$	S=1.2	2583
$\rho/\omega\gamma$		(	1.30 $\pm$ 0.23	$) \times 10^{-6}$	S=1.2	–
$\pi^\pm$ anything	[n,y]	(	358 $\pm$ 7	) %		–
π^0 anything		(	235 $\pm$ 11	) %		–
η anything		(	17.6 $\pm$ 1.6	) %		–
ρ^0 anything		(	21 $\pm$ 5	) %		–
ω anything		<	81	%	CL=90%	–
ϕ anything		(	3.43 $\pm$ 0.12	) %		–
$\phi K^*(892)$		<	2.2	$\times 10^{-5}$	CL=90%	2460
π^+ gluon (charmless)		(	3.7 $\pm$ 0.8	$) \times 10^{-4}$		–

Baryon modes

$\Lambda_c^+ / \overline{\Lambda}_c^-$ anything		(	3.6 $\pm$ 0.4	) %		–
Λ_c^+ anything		<	1.3	%	CL=90%	–
$\overline{\Lambda}_c^-$ anything		<	7	%	CL=90%	–
$\overline{\Lambda}_c^- \ell^+$ anything		<	9	$\times 10^{-4}$	CL=90%	–
$\overline{\Lambda}_c^- e^+$ anything		<	1.8	$\times 10^{-3}$	CL=90%	–
$\overline{\Lambda}_c^- \mu^+$ anything		< –	1.4	$\times 10^{-3}$	CL=90%	–
$\overline{\Lambda}_c^- p$ anything		(	2.06 $\pm$ 0.33	) %		–
$\overline{\Lambda}_c^- p e^+ \nu_e$		<	8	$\times 10^{-4}$	CL=90%	2021
$\overline{\Sigma}_c^{--}$ anything		(	3.4 $\pm$ 1.7	$) \times 10^{-3}$		–
$\overline{\Sigma}_c^-$ anything		<	8	$\times 10^{-3}$	CL=90%	–
$\overline{\Sigma}_c^0$ anything		(	3.7 $\pm$ 1.7	$) \times 10^{-3}$		–
$\overline{\Sigma}_c^0 N (N = p$ or $n)$		<	1.2	$\times 10^{-3}$	CL=90%	1938
Ξ_c^0 anything, $\Xi_c^0 \to \Xi^- \pi^+$		(	1.93 $\pm$ 0.30	$) \times 10^{-4}$	S=1.1	–

Ξ_c^+, $\Xi_c^+ \to \Xi^- \pi^+ \pi^+$			(	4.5	$\begin{array}{c}+\ 1.3\\ -\ 1.2\end{array}$	) $\times 10^{-4}$		–
$p/\overline{p}$ anything	[n]	(	8.0	$\pm$ 0.4	) %			–
$p/\overline{p}$ (direct) anything	[n]	(	5.5	$\pm$ 0.5	) %			–
$\overline{p} e^+ \nu_e$ anything		<	5.9		$\times 10^{-4}$ CL=90%			–
$\Lambda/\overline{\Lambda}$ anything	[n]	(	4.0	$\pm$ 0.5	) %			–
Λ anything			seen					–
$\overline{\Lambda}$ anything			seen					–
$\Xi^-/\overline{\Xi}^+$ anything	[n]	(	2.7	$\pm$ 0.6	) $\times 10^{-3}$			–
baryons anything		(	6.8	$\pm$ 0.6	) %			–
$p\overline{p}$ anything		(	2.47	$\pm$ 0.23	) %			–
$\Lambda\overline{p}/\overline{\Lambda}p$ anything	[n]	(	2.5	$\pm$ 0.4	) %			–
$\Lambda\overline{\Lambda}$ anything		<	5		$\times 10^{-3}$ CL=90%			–

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

$s e^+ e^-$	B1		(	6.7	$\pm$ 1.7	) $\times 10^{-6}$	S=2.0	–
$s \mu^+ \mu^-$	B1		(	4.3	$\pm$ 1.0	) $\times 10^{-6}$		–
$s \ell^+ \ell^-$	B1	[a]	(	5.8	$\pm$ 1.3	) $\times 10^{-6}$	S=1.8	–
$\pi \ell^+ \ell^-$	B1		<	5.9		$\times 10^{-8}$ CL=90%		2638
$\pi e^+ e^-$	B1		<	1.10		$\times 10^{-7}$ CL=90%		2638
$\pi \mu^+ \mu^-$	B1		<	5.0		$\times 10^{-8}$ CL=90%		2634
$K e^+ e^-$	B1		(	4.4	$\pm$ 0.6	) $\times 10^{-7}$		2617
$K^*(892) e^+ e^-$	B1		(	1.19	$\pm$ 0.20	) $\times 10^{-6}$	S=1.2	2565
$K \mu^+ \mu^-$	B1		(	4.4	$\pm$ 0.4	) $\times 10^{-7}$		2612
$K^*(892) \mu^+ \mu^-$	B1		(	1.06	$\pm$ 0.09	) $\times 10^{-6}$		2560
$K \ell^+ \ell^-$	B1		(	4.8	$\pm$ 0.4	) $\times 10^{-7}$		2617
$K^*(892) \ell^+ \ell^-$	B1		(	1.05	$\pm$ 0.10	) $\times 10^{-6}$		2565
$K \nu \overline{\nu}$	B1		<	1.6		$\times 10^{-5}$ CL=90%		2617
$K^* \nu \overline{\nu}$	B1		<	2.7		$\times 10^{-5}$ CL=90%		–
$\pi \nu \overline{\nu}$	B1		<	8		$\times 10^{-6}$ CL=90%		2638
$\rho \nu \overline{\nu}$	B1		<	2.8		$\times 10^{-5}$ CL=90%		2583
$s e^\pm \mu^\mp$	LF	[n] <	2.2		$\times 10^{-5}$ CL=90%			–
$\pi e^\pm \mu^\mp$	LF		<	9.2		$\times 10^{-8}$ CL=90%		2637
$\rho e^\pm \mu^\mp$	LF		<	3.2		$\times 10^{-6}$ CL=90%		2582
$K e^\pm \mu^\mp$	LF		<	3.8		$\times 10^{-8}$ CL=90%		2616
$K^*(892) e^\pm \mu^\mp$	LF		<	5.1		$\times 10^{-7}$ CL=90%		2563

$B^\pm/B^0/B_s^0/b$-baryon ADMIXTURE

These measurements are for an admixture of bottom particles at high energy (LHC, LEP, Tevatron, S$p\overline{p}$S).

Mean life $\tau = (1.5673 \pm 0.0029) \times 10^{-12}$ s

Mean life $\tau = (1.72 \pm 0.10) \times 10^{-12}$ s Charged *b*-hadron admixture

Mean life $\tau = (1.58 \pm 0.14) \times 10^{-12}$ s Neutral *b*-hadron admixture

$\tau_{\text{charged } b-\text{hadron}} / \tau_{\text{neutral } b-\text{hadron}} = 1.09 \pm 0.13$

$|\Delta\tau_b|/\tau_{b,\overline{b}} = -0.001 \pm 0.014$

The branching fraction measurements are for an admixture of *B* mesons and baryons at energies above the $\Upsilon(4S)$. Only the highest energy results (LHC, LEP, Tevatron, $Sp\overline{p}S$) are used in the branching fraction averages. In the following, we assume that the production fractions are the same at the LHC, LEP, and at the Tevatron.

For inclusive branching fractions, *e.g.*, $B \to D^{\pm}$ anything, the values usually are multiplicities, not branching fractions. They can be greater than one.

The modes below are listed for a $\overline{b}$ initial state. *b* modes are their charge conjugates. Reactions indicate the weak decay vertex and do not include mixing.

$\overline{b}$ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)

PRODUCTION FRACTIONS

The production fractions for weakly decaying *b*-hadrons at high energy have been calculated from the best values of mean lives, mixing parameters, and branching fractions in this edition by the Heavy Flavor Averaging Group (HFLAV) as described in the note "B^0-$\overline{B}^0$ Mixing" in the B^0 Particle Listings. We no longer provide world averages of the *b*-hadron production fractions, where results from LEP, Tevatron and LHC are averaged together; indeed the available data (from CDF and LHCb) shows that the fractions depend on the kinematics (in particular the p_T) of the produced *b* hadron. Hence we would like to list the fractions in *Z* decays instead, which are well-defined physics observables. The production fractions in $p\overline{p}$ collisions at the Tevatron are also listed at the end of the section. Values assume

$\text{B}(\overline{b} \to B^+) = \text{B}(\overline{b} \to B^0)$

$\text{B}(\overline{b} \to B^+) + \text{B}(\overline{b} \to B^0) + \text{B}(\overline{b} \to B_s^0) + \text{B}(b \to b\text{-baryon}) = 100\%$.

The correlation coefficients between production fractions are also reported:

$cor(B_s^0, b\text{-baryon}) = 0.064$
$cor(B_s^0, B^{\pm}=B^0) = -0.633$
$cor(b\text{-baryon}, B^{\pm}=B^0) = -0.813$.

The notation for production fractions varies in the literature (f_d, d_{B^0}, $f(b \to \overline{B}^0)$, $\text{Br}(b \to \overline{B}^0)$). We use our own branching fraction notation here, $\text{B}(\overline{b} \to B^0)$.

Note these production fractions are *b*-hadronization fractions, not the conventional branching fractions of *b*-quark to a *B*-hadron, which may have

considerable dependence on the initial and final state kinematic and production environment.

B^+	(40.8 $\pm$ 0.7) %	$-$
B^0	(40.8 $\pm$ 0.7) %	$-$
B_s^0	(10.0 $\pm$ 0.8) %	$-$
b-baryon	(8.4 $\pm$ 1.1) %	$-$

DECAY MODES

Semileptonic and leptonic modes

ν anything		(23.1 $\pm$ 1.5) %		$-$
$\ell^+ \nu_\ell$ anything	[a]	(10.69$\pm$ 0.22) %		$-$
$e^+ \nu_e$ anything		(10.86$\pm$ 0.35) %		$-$
$\mu^+ \nu_\mu$ anything		($10.95^{+\,0.29}_{-\,0.25}$) %		$-$
$D^- \ell^+ \nu_\ell$ anything	[a]	(2.2 $\pm$ 0.4) %	S=1.9	$-$
$D^- \pi^+ \ell^+ \nu_\ell$ anything		(4.9 $\pm$ 1.9) $\times 10^{-3}$		$-$
$D^- \pi^- \ell^+ \nu_\ell$ anything		(2.6 $\pm$ 1.6) $\times 10^{-3}$		$-$
$\overline{D}^0 \ell^+ \nu_\ell$ anything	[a]	(6.79$\pm$ 0.34) %		$-$
$\overline{D}^0 \pi^- \ell^+ \nu_\ell$ anything		(1.07$\pm$ 0.27) %		$-$
$\overline{D}^0 \pi^+ \ell^+ \nu_\ell$ anything		(2.3 $\pm$ 1.6) $\times 10^{-3}$		$-$
$D^{*-} \ell^+ \nu_\ell$ anything	[a]	(2.75$\pm$ 0.19) %		$-$
$D^{*-} \pi^- \ell^+ \nu_\ell$ anything		(6 $\pm$ 7) $\times 10^{-4}$		$-$
$D^{*-} \pi^+ \ell^+ \nu_\ell$ anything		(4.8 $\pm$ 1.0) $\times 10^{-3}$		$-$
$\overline{D}_j^0 \ell^+ \nu_\ell$ anything $\times$ B($\overline{D}_j^0 \to D^{*+}\pi^-$)	[a,z]	(2.6 $\pm$ 0.9) $\times 10^{-3}$		$-$
$D_j^- \ell^+ \nu_\ell$ anything $\times$ B($D_j^- \to D^0\pi^-$)	[a,z]	(7.0 $\pm$ 2.3) $\times 10^{-3}$		$-$
$\overline{D}_2^*(2460)^0 \ell^+ \nu_\ell$ anything $\times$ B($\overline{D}_2^*(2460)^0 \to D^{*-}\pi^+$)		< 1.4 $\times 10^{-3}$ CL=90%		$-$
$D_2^*(2460)^- \ell^+ \nu_\ell$ anything $\times$ B($D_2^*(2460)^- \to D^0\pi^-$)		($4.2^{+\,1.5}_{-\,1.8}$) $\times 10^{-3}$		$-$
$\overline{D}_2^*(2460)^0 \ell^+ \nu_\ell$ anything $\times$ B($\overline{D}_2^*(2460)^0 \to D^-\pi^+$)		(1.6 $\pm$ 0.8) $\times 10^{-3}$		$-$
charmless $\ell \overline{\nu}_\ell$	[a]	(1.7 $\pm$ 0.5) $\times 10^{-3}$		$-$
$\tau^+ \nu_\tau$ anything		(2.41$\pm$ 0.23) %		$-$
$D^{*-} \tau \nu_\tau$ anything		(9 $\pm$ 4) $\times 10^{-3}$		$-$
$\overline{c} \to \ell^- \overline{\nu}_\ell$ anything	[a]	(8.02$\pm$ 0.19) %		$-$
$c \to \ell^+ \nu$ anything		($1.6^{+\,0.4}_{-\,0.5}$) %		$-$

Charmed meson and baryon modes

$\overline{D}^0$ anything		(58.7 ± 2.8) %	–
$D^0 D_s^{\pm}$ anything	[n]	($9.1 {}^{+4.0}_{-2.8}$) %	–
$D^{\mp} D_s^{\pm}$ anything	[n]	($4.0 {}^{+2.3}_{-1.8}$) %	–
$\overline{D}^0 D^0$ anything	[n]	($5.1 {}^{+2.0}_{-1.8}$) %	–
$D^0 D^{\pm}$ anything	[n]	($2.7 {}^{+1.8}_{-1.6}$) %	–
$D^{\pm} D^{\mp}$ anything	[n] <	9×10^{-3} CL=90%	–
D^- anything		(22.7 ± 1.6) %	–
$D^*(2010)^+$ anything		(17.3 ± 2.0) %	–
$D_1(2420)^0$ anything		(5.0 ± 1.5) %	–
$D^*(2010)^{\mp} D_s^{\pm}$ anything	[n]	($3.3 {}^{+1.6}_{-1.3}$) %	–
$D^0 D^*(2010)^{\pm}$ anything	[n]	($3.0 {}^{+1.1}_{-0.9}$) %	–
$D^*(2010)^{\pm} D^{\mp}$ anything	[n]	($2.5 {}^{+1.2}_{-1.0}$) %	–
$D^*(2010)^{\pm} D^*(2010)^{\mp}$ anything	[n]	(1.2 ± 0.4) %	–
$\overline{D} D$ anything		($10 {}^{+11}_{-10}$) %	–
$D_2^*(2460)^0$ anything		(4.7 ± 2.7) %	–
D_s^- anything		(14.7 ± 2.1) %	–
D_s^+ anything		(10.1 ± 3.1) %	–
Λ_c^+ anything		(7.8 ± 1.1) %	–
$\overline{c}/c$ anything	[y]	(116.2 ± 3.2) %	–

Charmonium modes

$J/\psi(1S)$ anything		(1.16 ± 0.10) %	–
$\psi(2S)$ anything		(3.06 ± 0.30) $\times 10^{-3}$	–
$\chi_{c0}(1P)$ anything		(1.4 ± 0.5) %	–
$\chi_{c1}(1P)$ anything		(1.4 ± 0.4) %	–
$\chi_{c2}(1P)$ anything		(5.5 ± 2.4) $\times 10^{-3}$	–
$\chi_c(2P)$ anything, $\chi_c \rightarrow \phi\phi$	<	2.8×10^{-7} CL=95%	–
$\eta_c(1S)$ anything		(5.6 ± 0.9) $\times 10^{-3}$	–
$\eta_c(2S)$ anything, $\eta_c \rightarrow \phi\phi$		(4.1 ± 1.7) $\times 10^{-7}$	–
$\chi_{c1}(3872)$ anything, $\chi_{c1} \rightarrow$ $\phi\phi$	<	4.5×10^{-7} CL=95%	–
$\chi_{c0}(3915)$ anything, $\chi_{c0} \rightarrow$ $\phi\phi$	<	3.1×10^{-7} CL=95%	–

K or K* modes

$\overline{s}\gamma$		(3.1 ± 1.1) $\times 10^{-4}$	–
$\overline{s}\nu\nu$	B1 <	6.4×10^{-4} CL=90%	–
$K^{\pm}$ anything		(74 ± 6) %	–
K_S^0 anything		(29.0 ± 2.9) %	–

Pion modes

$\pi^{\pm}$ anything		$(397 \pm 21\ )\ \%$		−
π^0 anything	[y]	$(280 \pm 60\ )\ \%$		−
ϕ anything		$(2.82 \pm 0.23)\ \%$		−

Baryon modes

$p/\overline{p}$ anything	$(13.1 \pm 1.1\ )\ \%$	−
$\Lambda/\overline{\Lambda}$ anything	$(5.9 \pm 0.6\ )\ \%$	−
b-baryon anything	$(10.2 \pm 2.8\ )\ \%$	−

Other modes

charged anything	[y]	$(497 \pm 7\ )\ \%$	−
hadron$^+$ hadron$^-$		$(1.7 {}^{+\ 1.0}_{-\ 0.7})\times 10^{-5}$	−
charmless		$(7 \pm 21\ )\times 10^{-3}$	−

$\Delta B = 1$ weak neutral current ($B1$) modes

$\mu^+\mu^-$ anything	B1	$<\ 3.2$	$\times 10^{-4}$ CL=90%	−

B^*

$$I(J^P) = \tfrac{1}{2}(1^-)$$
I, J, P need confirmation.

Quantum numbers shown are quark-model predictions.

Mass $m_{B^*} = 5324.75 \pm 0.20$ MeV

$m_{B^*} - m_B = 45.18 \pm 0.20$ MeV

$m_{B^{*+}} - m_{B^+} = 45.34 \pm 0.20$ MeV

B^* DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$B\gamma$	seen	45

$B_1(5721)$

$$I(J^P) = \tfrac{1}{2}(1^+)$$
I, J, P need confirmation.

$B_1(5721)^+$ mass $= 5726.0^{+2.5}_{-2.7}$ MeV

$m_{B_1^+} - m_{B^{*0}} = 401.2^{+2.4}_{-2.7}$ MeV

$B_1(5721)^0$ mass $= 5726.1 \pm 1.2$ MeV (S = 1.2)

$m_{B_1^0} - m_{B^+} = 446.7 \pm 1.2$ MeV (S = 1.2)

$m_{B_1^0} - m_{B^{*+}} = 401.4 \pm 1.2$ MeV (S = 1.2)

Full width $\Gamma(B_1(5721)^+) = 31 \pm 6$ MeV (S = 1.1)

Full width $\Gamma(B_1(5721)^0) = 27.5 \pm 3.4$ MeV (S = 1.1)

$B_1(5721)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$B^*\pi$	seen	365

$B_2^*(5747)$

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

I, J, P need confirmation.

$B_2^*(5747)^+$ mass $= 5737.3 \pm 0.7$ MeV

$m_{B_2^{*+}} - m_{B^0} = 457.5 \pm 0.7$ MeV

$B_2^*(5747)^0$ mass $= 5739.6 \pm 0.7$ MeV   (S = 1.4)

$m_{B_2^{*0}} - m_{B_1^0} = 13.5 \pm 1.4$ MeV   (S = 1.3)

$m_{B_2^{*0}} - m_{B^+} = 460.2 \pm 0.6$ MeV   (S = 1.4)

Full width $\Gamma(B_2^*(5747)^+) = 20 \pm 5$ MeV   (S = 2.2)

Full width $\Gamma(B_2^*(5747)^0) = 24.2 \pm 1.7$ MeV

$B_2^*(5747)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$B\pi$	seen	420
$B^*\pi$	seen	376

$B_J(5970)$

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

I, J, P need confirmation.

$B_J(5970)^+$ mass $m = 5965 \pm 5$ MeV

$m_{B_J(5970)^+} - m_{B^0} = 685 \pm 5$ MeV

$B_J(5970)^0$ mass $m = 5971 \pm 5$ MeV

$m_{B_J(5970)^0} - m_{B^+} = 691 \pm 5$ MeV

$B_J(5970)^+$ full width $\Gamma = 62 \pm 20$ MeV

$B_J(5970)^0$ full width $\Gamma = 81 \pm 12$ MeV

$B_J(5970)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$B\pi$	possibly seen	633
$B^*\pi$	seen	592

NOTES

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

[b] An $CP(\pm 1)$ indicates the $CP=+1$ and $CP=-1$ eigenstates of the D^0-$\overline{D}^0$ system.

[c] D denotes D^0 or $\overline{D}^0$.

[d] D^{*0}_{CP+} decays into $D^0 \pi^0$ with the D^0 reconstructed in CP-even eigenstates $K^+ K^-$ and $\pi^+ \pi^-$.

[e] $\overline{D}^{**}$ represents an excited state with mass $2.2 < M < 2.8$ GeV/c^2.

[f] $\chi_{c1}(3872)^+$ is a hypothetical charged partner of the $\chi_{c1}(3872)$.

[g] $\Theta(1710)^{++}$ is a possible narrow pentaquark state and $G(2220)$ is a possible glueball resonance.

[h] $(\overline{\Lambda}_c^- p)_s$ denotes a low-mass enhancement near 3.35 GeV/c^2.

[i] Stands for the possible candidates of $K^*(1410)$, $K_0^*(1430)$ and $K_2^*(1430)$.

[j] B^0 and B_s^0 contributions not separated. Limit is on weighted average of the two decay rates.

[k] This decay refers to the coherent sum of resonant and nonresonant $J^P = 0^+$ $K\pi$ components with $1.60 < m_{K\pi} < 2.15$ GeV/c^2.

[l] $X(214)$ is a hypothetical particle of mass 214 MeV/c^2 reported by the HyperCP experiment, Physical Review Letters **94** 021801 (2005)

[n] The value is for the sum of the charge states or particle/antiparticle states indicated.

[o] $\Theta(1540)^+$ denotes a possible narrow pentaquark state.

[p] ψ_{DS} is a GeV-scale dark sector antibaryon (mass range 1–4 GeV/c^2).

[q] Here S and P are the hypothetical scalar and pseudoscalar particles with masses of 2.5 GeV/c^2 and 214.3 MeV/c^2, respectively.

[r] These values are model dependent.

[s] Here "anything" means at least one particle observed.

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

[u] 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.

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

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

[y] Inclusive branching fractions have a multiplicity definition and can be greater than 100%.

[z] D_j represents an unresolved mixture of pseudoscalar and tensor D^{**} (P-wave) states.