

BOTTOM, CHARMED MESONS

($B = C = \pm 1$)

$$B_c^+ = c\bar{b}, B_c^- = \bar{c}b, \quad \text{similarly for } B_c^{*s}$$

B_c^+

$$I(J^P) = 0(0^-)$$

I, J, P need confirmation.

Quantum numbers shown are quark-model predictions.

$$\text{Mass } m = 6274.9 \pm 0.8 \text{ MeV}$$

$$\text{Mean life } \tau = (0.510 \pm 0.009) \times 10^{-12} \text{ s}$$

B_c^- modes are charge conjugates of the modes below.

B_c^+ DECAY MODES $\times B(\bar{b} \rightarrow B_c)$	Fraction (Γ_i/Γ)	Confidence level	P (MeV/c)
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The following quantities are not pure branching ratios; rather the fraction $\Gamma_i/\Gamma \times B(\bar{b} \rightarrow B_c)$.

$J/\psi(1S)\ell^+\nu_\ell$ anything	$(8.1 \pm 1.2) \times 10^{-5}$		—
$J/\psi(1S)\pi^+$	seen		2371
$J/\psi(1S)K^+$	seen		2341
$J/\psi(1S)\pi^+\pi^+\pi^-$	seen		2350
$J/\psi(1S)a_1(1260)$	< 1.2	$\times 10^{-3}$	90% 2169
$J/\psi(1S)K^+K^-\pi^+$	seen		2203
$J/\psi(1S)\pi^+\pi^+\pi^+\pi^-\pi^-$	seen		2309
$\psi(2S)\pi^+$	seen		2052
$J/\psi(1S)D^0K^+$	seen		1539
$J/\psi(1S)D^*(2007)^0K^+$	seen		1412
$J/\psi(1S)D^*(2010)^+K^{*0}$	seen		920
$J/\psi(1S)D^+K^{*0}$	seen		1123
$J/\psi(1S)D_s^+$	seen		1822
$J/\psi(1S)D_s^{*+}$	seen		1728
$J/\psi(1S)p\bar{p}\pi^+$	seen		1792
$\chi_c^0\pi^+$	$(2.4^{+0.9}_{-0.8}) \times 10^{-5}$		2205
$p\bar{p}\pi^+$	not seen		2970
D^0K^+	$(3.8^{+1.2}_{-1.0}) \times 10^{-7}$		2837
$D^0\pi^+$	< 1.6	$\times 10^{-7}$	95% 2858
$D^{*0}\pi^+$	< 4	$\times 10^{-7}$	95% 2815
$D^{*0}K^+$	< 4	$\times 10^{-7}$	95% 2793

$D_s^+ \bar{D}^0$	< 1.4	$\times 10^{-7}$	90%	2484
$D_s^+ D^0$	< 6	$\times 10^{-8}$	90%	2484
$D^+ \bar{D}^0$	< 3.0	$\times 10^{-6}$	90%	2521
$D^+ D^0$	< 1.9	$\times 10^{-6}$	90%	2521
$D^{*(2010)+} \bar{D}^0$	< 6.2	$\times 10^{-3}$	90%	2467
$D_s^{*+} \bar{D}^{*(2007)0}$	< 1.7	$\times 10^{-6}$	90%	2366
$D_s^{*+} D^{*(2007)0}$	< 3.1	$\times 10^{-6}$	90%	2366
$D^{*(2010)+} \bar{D}^{*(2007)0}$	< 1.0	$\times 10^{-4}$	90%	2410
$D^{*(2010)+} D^{*(2007)0}$	< 2.0	$\times 10^{-5}$	90%	2410
$D^+ K^{*0}$	< 0.20	$\times 10^{-6}$	90%	2783
$D^+ \bar{K}^{*0}$	< 0.16	$\times 10^{-6}$	90%	2783
$D_s^+ K^{*0}$	< 0.28	$\times 10^{-6}$	90%	2751
$D_s^+ \bar{K}^{*0}$	< 0.4	$\times 10^{-6}$	90%	2751
$D_s^+ \phi$	< 0.32	$\times 10^{-6}$	90%	2727
$K^+ K^0$	< 4.6	$\times 10^{-7}$	90%	3098
$B_s^0 \pi^+ / B(\bar{b} \rightarrow B_s)$	$(2.37^{+0.37}_{-0.35})$	$\times 10^{-3}$		–