

# BOTTOM, CHARMED MESONS ( $B = C = \pm 1$ )

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

$B_c^\pm$

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

$I, J, P$  need confirmation.

Quantum numbers shown are quark-model predictions.

$$\text{Mass } m = 6.2756 \pm 0.0011 \text{ GeV}$$

$$\text{Mean life } \tau = (0.452 \pm 0.033) \times 10^{-12} \text{ s}$$

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

$B_c^+$ DECAY MODES $\times B(\bar{b} \rightarrow B_c)$	Fraction ( $\Gamma_i/\Gamma$ )	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	$(5.2^{+2.4}_{-2.1}) \times 10^{-5}$		—
$J/\psi(1S)\pi^+$	seen		2371
$J/\psi(1S)K^+$	seen		2342
$J/\psi(1S)\pi^+\pi^+\pi^-$	seen		2351
$J/\psi(1S)a_1(1260)$	$< 1.2 \times 10^{-3}$	90%	2170
$J/\psi(1S)K^+K^-\pi^+$	seen		2203
$\psi(2S)\pi^+$	seen		2052
$J/\psi(1S)D_s^+$	seen		1822
$J/\psi(1S)D_s^{*+}$	seen		1728
$D^*(2010)^+\bar{D}^0$	$< 6.2 \times 10^{-3}$	90%	2467
$D^+K^{*0}$	$< 0.20 \times 10^{-6}$	90%	2783
$D^+\bar{K}^{*0}$	$< 0.16 \times 10^{-6}$	90%	2783
$D_s^+K^{*0}$	$< 0.28 \times 10^{-6}$	90%	2752
$D_s^+\bar{K}^{*0}$	$< 0.4 \times 10^{-6}$	90%	2752
$D_s^+\phi$	$< 0.32 \times 10^{-6}$	90%	2728
$K^+K^0$	$< 4.6 \times 10^{-7}$	90%	3098
$B_s^0\pi^+ / B(\bar{b} \rightarrow B_s)$	$(2.37^{+0.37}_{-0.35}) \times 10^{-3}$		—