B_c^+

$I(J^P) = 0(0^-)$
I, J, P need confirmation.

Quantum numbers shown are quark-model predictions.

B_c^+ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
6275.1 ± 1.0 OUR AVERAGE				
6274.0 ± 1.8 ± 0.4	[1] AAIJ	14AQ	LHCB	pp at 7, 8 TeV
6276.28 ± 1.44 ± 0.36	[2] AAIJ	13AS	LHCB	pp at 7, 8 TeV
6273.7 ± 1.3 ± 1.6	[3] AAIJ	12AV	LHCB	pp at 7 TeV
6275.6 ± 2.9 ± 2.5	[4] AALTONEN	08M	CDF	$p\overline{p}$ at 1.96 TeV
6300 ± 14 ± 5	[4] ABAZOV	08T	D0	$p\overline{p}$ at 1.96 TeV
6400 ± 390 ± 130	[5] ABE	98M	CDF	$p\overline{p}$ at 1.8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
6285.7 ± 5.3 ± 1.2	[4] ABULENCIA	06C	CDF	Repl. by AALTONEN 08M
6320 ± 60	[6] ACKERSTAFF	98O	OPAL	$e^+e^- \rightarrow Z$

[1] Uses $B_c^+ \rightarrow J/\psi p\overline{p}\pi^+$ decays.

[2] AAIJ 13AS uses the $B_c^+ \rightarrow J/\psi D_s^+$.

[3] AAIJ 12AV uses the $B_c^+ \rightarrow J/\psi\pi^+$ mode and also measures the mass difference M(B_c^+) − M(B^+) = 994.6 ± 1.3 ± 0.6 MeV/c^2.

[4] Measured using a fully reconstructed decay mode of $B_c \rightarrow J/\psi\pi$.

[5] ABE 98M observed $20.4^{+6.2}_{-5.5}$ events in the $B_c^+ \rightarrow J/\psi(1s)\ell\nu_\ell$ with a significance of > 4.8 standard deviations. The mass value is estimated from $m(J/\psi(1S)\ell)$.

[6] ACKERSTAFF 98O observed 2 candidate events in the $B_c^+ \rightarrow J/\psi(1S)\pi^+$ channel with an estimated background of 0.63 ± 0.20 events.

B_c^+ MEAN LIFE

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFAG) and are described at http://www.slac.stanford.edu/xorg/hfag/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (10^{-12} s)	DOCUMENT ID		TECN	COMMENT
0.507 ± 0.009 OUR EVALUATION				
0.507 ± 0.009 OUR AVERAGE				
0.5134 ± 0.0110 ± 0.0057	[1,2] AAIJ	15G	LHCB	pp at 7, 8 TeV
0.509 ± 0.008 ± 0.012	[3] AAIJ	14G	LHCB	pp at 8 TeV
0.452 ± 0.048 ± 0.027	[2] AALTONEN	13	CDF	$p\overline{p}$ at 1.96 TeV
$0.448^{+0.038}_{-0.036}$ ± 0.032	[4] ABAZOV	09H	D0	$p\overline{p}$ at 1.96 TeV
$0.463^{+0.073}_{-0.065}$ ± 0.036	[4] ABULENCIA	06O	CDF	$p\overline{p}$ at 1.96 TeV
$0.46^{+0.18}_{-0.16}$ ± 0.03	[4] ABE	98M	CDF	$p\overline{p}$ 1.8 TeV

[1] Also measures the width difference $\Delta\Gamma = \Gamma_{B_c^+} - \Gamma_{B^+} = 4.46 \pm 0.14 \pm 0.07\ \mathrm{mm}^{-1}$ c.

[2] Uses fully reconstructed $B_c^+ \to J/\psi \pi^+$ decays.

[3] Measured using $B_c^+ \to J/\psi \mu^+ \nu_\mu X$ decays.

[4] The lifetime is measured from the $J/\psi e$ decay vertices.

B_c^+ DECAY MODES × B($\overline{b} \to B_c$)

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

	Mode	Fraction (Γ_i/Γ)	Confidence level
	The following quantities are not pure branching ratios; rather the fraction $\Gamma_i/\Gamma \times$ B($\overline{b} \to B_c$).		
Γ_1	$J/\psi(1S)\ell^+\nu_\ell$ anything	$(5.2\ ^{+2.4}_{-2.1}) \times 10^{-5}$	
Γ_2	$J/\psi(1S)\mu^+\nu_\mu$		
Γ_3	$J/\psi(1S)\pi^+$	seen	
Γ_4	$J/\psi(1S)K^+$	seen	
Γ_5	$J/\psi(1S)\pi^+\pi^+\pi^-$	seen	
Γ_6	$J/\psi(1S)a_1(1260)$	$< 1.2 \times 10^{-3}$	90%
Γ_7	$J/\psi(1S)K^+K^-\pi^+$	seen	
Γ_8	$J/\psi(1S)\pi^+\pi^+\pi^+\pi^-\pi^-$	seen	
Γ_9	$\psi(2S)\pi^+$	seen	
Γ_{10}	$J/\psi(1S)D_s^+$	seen	
Γ_{11}	$J/\psi(1S)D_s^{*+}$	seen	
Γ_{12}	$J/\psi(1S)p\overline{p}\pi^+$	seen	
Γ_{13}	$D^*(2010)^+\overline{D}^0$	$< 6.2 \times 10^{-3}$	90%
Γ_{14}	D^+K^{*0}	$< 0.20 \times 10^{-6}$	90%
Γ_{15}	$D^+\overline{K}^{*0}$	$< 0.16 \times 10^{-6}$	90%
Γ_{16}	$D_s^+K^{*0}$	$< 0.28 \times 10^{-6}$	90%
Γ_{17}	$D_s^+\overline{K}^{*0}$	$< 0.4 \times 10^{-6}$	90%
Γ_{18}	$D_s^+\phi$	$< 0.32 \times 10^{-6}$	90%
Γ_{19}	K^+K^0	$< 4.6 \times 10^{-7}$	90%
Γ_{20}	$B_s^0\pi^+$ / B($\overline{b} \to B_s$)	$(2.37^{+0.37}_{-0.35}) \times 10^{-3}$	

B_c^+ BRANCHING RATIOS

$\Gamma(J/\psi(1S)\ell^+\nu_\ell\,\text{anything})/\Gamma_{total} \times$ B($\overline{b} \to B_c$) **$\Gamma_1/\Gamma \times$ B**

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$(5.2^{+2.4}_{-2.1}) \times 10^{-5}$		[1] ABE	98M	CDF	$p\overline{p}$ 1.8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

< 1.6	$\times 10^{-4}$	90	[2] ACKERSTAFF	98O	OPAL	$e^+e^- \rightarrow Z$
< 1.9	$\times 10^{-4}$	90	[3] ABREU	97E	DLPH	$e^+e^- \rightarrow Z$
< 1.2	$\times 10^{-4}$	90	[4] BARATE	97H	ALEP	$e^+e^- \rightarrow Z$

[1] ABE 98M result is derived from the measurement of $[\sigma(B_c)\times\text{B}(B_c \rightarrow J/\psi(1S)\ell\nu_\ell)]$ / $[\sigma(B^+)\times\text{B}(B^+ \rightarrow J/\psi(1S)K^+)] = 0.132^{+0.041}_{-0.037}(\text{stat})\pm0.031(\text{sys})^{+0.032}_{-0.020}(\text{lifetime})$ by using PDG 98 values of $\text{B}(b \rightarrow B^+)$ and $\text{B}(B^+ \rightarrow J/\psi(1S)K^+)$.

[2] ACKERSTAFF 98O reports $\text{B}(Z \rightarrow B_c X)/\text{B}(Z \rightarrow q\overline{q})\times\text{B}(B_c \rightarrow J/\psi(1S)\ell\nu_\ell) < 6.95\times10^{-5}$ at 90%CL. We rescale to our PDG 98 values of $\text{B}(Z \rightarrow b\overline{b})$.

[3] ABREU 97E value listed is for an assumed $\tau_{B_c} = 0.4$ ps and improves to 1.6×10^{-4} for $\tau_{B_c} = 1.4$ ps.

[4] BARATE 97H reports $\text{B}(Z \rightarrow B_c X)/\text{B}(Z \rightarrow q\overline{q})\cdot\text{B}(B_c \rightarrow J/\psi(1S)\ell\nu_\ell) < 5.2\times10^{-5}$ at 90%CL. We rescale to our PDG 96 values of $\text{B}(Z \rightarrow b\overline{b})$. A $B_c^+ \rightarrow J/\psi(1S)\mu^+\nu_\mu$ candidate event is found, compared to all the known background sources 2×10^{-3}, which gives $m_{B_c} = 5.96^{+0.25}_{-0.19}$ GeV and $\tau_{B_c} = 1.77 \pm 0.17$ ps.

$\Gamma(J/\psi(1S)\pi^+)/\Gamma_{\text{total}} \times \text{B}(\overline{b} \rightarrow B_c)$ $\Gamma_3/\Gamma \times \text{B}$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
seen		[1] AAIJ	15M	LHCB	pp at 8 TeV
seen		[2] KHACHATRY...	15AA	CMS	pp at 7 TeV
seen		AALTONEN	13	CDF	$p\overline{p}$ at 1.96 TeV
seen		[3] AAIJ	12AV	LHCB	pp at 7 TeV
seen		AALTONEN	08M	CDF	$p\overline{p}$ at 1.96 TeV
seen		ABAZOV	08T	D0	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.4\times10^{-4}$	90	[4] ACKERSTAFF	98O	OPAL	$e^+e^- \rightarrow Z$
$<3.4\times10^{-4}$	90	[5] ABREU	97E	DLPH	$e^+e^- \rightarrow Z$
$<8.2\times10^{-5}$	90	[6] BARATE	97H	ALEP	$e^+e^- \rightarrow Z$
$<2.0\times10^{-5}$	95	[7] ABE	96R	CDF	$p\overline{p}$ 1.8 TeV

[1] AAIJ 15M reports a measurement of $\text{B}(B_c^+ \rightarrow J/\psi\pi^+)$ / $\text{B}(B^+ \rightarrow J/\psi K^+)\cdot f_c/f_u = (0.683 \pm 0.018 \pm 0.009)\%$ at $p_T(B) < 20$ GeV and $2.0 < \text{y}(B) < 4.5$.

[2] KHACHATRYAN 15AA reports a measurement of $\text{B}(B_c^+ \rightarrow J/\psi\pi^+)$ / $\text{B}(B^+ \rightarrow J/\psi K^+)\cdot f_c/f_u = (0.48\pm0.05\pm0.03\pm0.05)\%$, at $p_T > 15$ GeV and $|\eta(B)| < 1.6$.

[3] AAIJ 12AV reports a measurement of $\text{B}(B_c^+ \rightarrow J/\psi\pi^+)/\text{B}(B^+ \rightarrow J/\psi K^+)\ f_c/f_u = (0.68 \pm 0.10 \pm 0.03 \pm 0.05)\%$ at $p_T(B) > 4$ GeV and $2.5 < \eta(B) < 4.5$.

[4] ACKERSTAFF 98O reports $\text{B}(Z \rightarrow B_c X)/\text{B}(Z \rightarrow q\overline{q})\times\text{B}(B_c \rightarrow J/\psi(1S)\pi^+) < 1.06\times10^{-4}$ at 90%CL. We rescale to our PDG 98 values of $\text{B}(Z \rightarrow b\overline{b})$.

[5] ABREU 97E value listed is for an assumed $\tau_{B_c} = 0.4$ ps and improves to 2.7×10^{-4} for $\tau_{B_c} = 1.4$ ps.

[6] BARATE 97H reports $\text{B}(Z \rightarrow B_c X)/\text{B}(Z \rightarrow q\overline{q})\cdot\text{B}(B_c \rightarrow J/\psi(1S)\pi) < 3.6\times10^{-5}$ at 90%CL. We rescale to our PDG 96 values of $\text{B}(Z \rightarrow b\overline{b})$.

[7] ABE 96R reports $\text{B}(b \rightarrow B_c X)/\text{B}(b \rightarrow B^+ X)\cdot\text{B}(B_c^+ \rightarrow J/\psi(1S)\pi^+)/\text{B}(B^+ \rightarrow J/\psi(1S)K^+) < 0.053$ at 95%CL for $\tau_{B_c} = 0.8$ ps. It changes from 0.15 to 0.04 for 0.17 ps$< \tau_{B_c} < 1.6$ ps. We rescale to our PDG 96 values of $\text{B}(b \rightarrow B^+) = 0.378\pm0.022$ and $\text{B}(B^+ \rightarrow J/\psi(1S)K^+) = 0.00101 \pm 0.00014$.

$\Gamma(J/\psi(1S)\pi^+)/\Gamma(J/\psi(1S)\mu^+\nu_\mu)$ — Γ_3/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
$(4.69\pm0.28\pm0.46)\times10^{-2}$	[1] AAIJ	14W	LHCB	pp at 7 TeV

[1] AAIJ 14W reports also a measurement $B(B_c^+ \to J/\psi\pi^+)$ / $B(B_c^+ \to J/\psi\mu^+\nu_\mu)$ = $0.271 \pm 0.016 \pm 0.016$ in the region $m_{J/\psi\mu^+} > 5.3$ GeV.

$\Gamma(J/\psi(1S)K^+)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_4/Γ_3

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.069\pm0.019\pm0.005$	50	AAIJ	13BY	LHCB	pp at 7 TeV

$\Gamma(J/\psi(1S)\pi^+\pi^+\pi^-)/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_5/\Gamma \times B$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
seen		AAIJ	12Y	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<5.7\times10^{-4}$	90	[1] ABREU	97E	DLPH	$e^+e^- \to Z$

[1] ABREU 97E value listed is independent of 0.4 ps$< \tau_{B_c} <$ 1.4 ps.

$\Gamma(J/\psi(1S)\pi^+\pi^+\pi^-)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_5/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
2.4 ±0.4 OUR AVERAGE				
$2.55\pm0.80\pm0.33^{+0.04}_{-0.01}$	KHACHATRY...	15AA	CMS	pp at 7 TeV
$2.41\pm0.30\pm0.33$	AAIJ	12Y	LHCB	pp at 7 TeV

$\Gamma(J/\psi(1S)a_1(1260))/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_6/\Gamma \times B$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2\times10^{-3}$	90	[1] ACKERSTAFF	98O	OPAL	$e^+e^- \to Z$

[1] ACKERSTAFF 98O reports $B(Z \to B_c X)/B(Z \to q\overline{q})\times B(B_c \to J/\psi(1S)a_1(1260)) < 5.29\times10^{-4}$ at 90%CL. We rescale to our PDG 98 values of $B(Z \to b\overline{b})$.

$\Gamma(J/\psi(1S)K^+K^-\pi^+)/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_7/\Gamma \times B$

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] AAIJ	13CA	LHCB	pp at 7, 8 TeV

[1] A signal yield of 78 ± 14 decays is reported with a significance of 6.2 standard deviations using an integrated luminosity of 3 fb^{-1} data.

$\Gamma(J/\psi(1S)K^+K^-\pi^+)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_7/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
$0.53\pm0.10\pm0.05$	[1] AAIJ	13CA	LHCB	pp at 7, 8 TeV

[1] A signal yield of 78 ± 14 decays is reported with a significance of 6.2 standard deviations using an integrated luminosity of 3 fb^{-1} data.

$\Gamma(J/\psi(1S)\pi^+\pi^+\pi^+\pi^-\pi^-)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_8/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
$1.74\pm0.44\pm0.24$	[1] AAIJ	14P	LHCB	pp at 7, 8 TeV

[1] A signal yield of 32 ± 8 decays is reported with a significance of 4.5 standard deviations.

$\Gamma(\psi(2S)\pi^+)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_9/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
0.268±0.032±0.007±0.006	[1] AAIJ	15AY	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.250±0.068±0.014±0.006	[1] AAIJ	13AM	LHCB	Repl. by AAIJ 15AY

[1] The last uncertainty is due to the uncertainty of the $B(\psi(2S) \to \mu^+\mu^-)/B(J/\psi \to \mu^+\mu^-)$ ratio measurement.

$\Gamma(J/\psi(1S)D_s^+)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_{10}/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
3.1 ±0.5 OUR AVERAGE				
3.8 ±1.1 ±0.4	AAD	16H	ATLS	pp at 7, 8 TeV
2.90±0.57±0.24	AAIJ	13AS	LHCB	pp at 7, 8 TeV

$\Gamma(J/\psi(1S)D_s^{*+})/\Gamma(J/\psi(1S)\pi^+)$ — Γ_{11}/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
10.4±3.1±1.6	AAD	16H	ATLS	pp at 7, 8 TeV

$\Gamma(J/\psi(1S)D_s^{*+})/\Gamma(J/\psi(1S)D_s^+)$ — Γ_{11}/Γ_{10}

VALUE	DOCUMENT ID		TECN	COMMENT
2.5 ±0.5 OUR AVERAGE				
$2.8\ ^{+1.2}_{-0.8}\ \pm0.3$	AAD	16H	ATLS	pp at 7, 8 TeV
2.37±0.56±0.10	AAIJ	13AS	LHCB	pp at 7, 8 TeV

$\Gamma(J/\psi(1S)p\overline{p}\pi^+)/\Gamma(J/\psi(1S)\pi^+)$ — Γ_{12}/Γ_3

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.143^{+0.041}_{-0.036}}$	AAIJ	14AQ	LHCB	pp at 7, 8 TeV

$\Gamma(D^*(2010)^+\overline{D}^0)/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_{13}/\Gamma \times B$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<6.2 × 10^−3	90	[1] BARATE	98Q	ALEP	$e^+e^- \to Z$

[1] BARATE 98Q reports $B(Z \to B_c X)\times B(B_c \to D^*(2010)^+\overline{D}^0) < 1.9 \times 10^{-3}$ at 90%CL. We rescale to our PDG 98 values of $B(Z \to b\overline{b})$.

$\Gamma(D^+K^{*0})/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_{14}/\Gamma \times B$

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.20	90	[1] AAIJ	13R	LHCB	pp at 7 TeV

[1] AAIJ 13R reports $[\Gamma(B_c^+ \to D^+K^{*0})/\Gamma_{total} \times B(\overline{b} \to B_c)] / [B(\overline{b} \to B^+)] < 0.5 \times 10^{-6}$ which we multiply by our best value $B(\overline{b} \to B^+) = 40.4 \times 10^{-2}$.

$\Gamma(D^+\overline{K}^{*0})/\Gamma_{total} \times B(\overline{b} \to B_c)$ — $\Gamma_{15}/\Gamma \times B$

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.16	90	[1] AAIJ	13R	LHCB	pp at 7 TeV

[1] AAIJ 13R reports $[\Gamma(B_c^+ \to D^+\overline{K}^{*0})/\Gamma_{total} \times B(\overline{b} \to B_c)] / [B(\overline{b} \to B^+)] < 0.4 \times 10^{-6}$ which we multiply by our best value $B(\overline{b} \to B^+) = 40.4 \times 10^{-2}$.

$\Gamma(D_s^+ K^{*0})/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)$ — $\Gamma_{16}/\Gamma \times B$

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.28	90	[1] AAIJ	13R	LHCB	pp at 7 TeV

[1] AAIJ 13R reports $[\Gamma(B_c^+ \to D_s^+ K^{*0})/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)] / [B(\overline{b} \to B^+)] < 0.7 \times 10^{-6}$ which we multiply by our best value $B(\overline{b} \to B^+) = 40.4 \times 10^{-2}$.

$\Gamma(D_s^+ \overline{K}^{*0})/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)$ — $\Gamma_{17}/\Gamma \times B$

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.4	90	[1] AAIJ	13R	LHCB	pp at 7 TeV

[1] AAIJ 13R reports $[\Gamma(B_c^+ \to D_s^+ \overline{K}^{*0})/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)] / [B(\overline{b} \to B^+)] < 1.1 \times 10^{-6}$ which we multiply by our best value $B(\overline{b} \to B^+) = 40.4 \times 10^{-2}$.

$\Gamma(D_s^+ \phi)/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)$ — $\Gamma_{18}/\Gamma \times B$

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.32	90	[1] AAIJ	13R	LHCB	pp at 7 TeV

[1] AAIJ 13R reports $[\Gamma(B_c^+ \to D_s^+ \phi)/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)] / [B(\overline{b} \to B^+)] < 0.8 \times 10^{-6}$ which we multiply by our best value $B(\overline{b} \to B^+) = 40.4 \times 10^{-2}$.

$\Gamma(K^+ K^0)/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)$ — $\Gamma_{19}/\Gamma \times B$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.6 \times 10^{-7}$	90	[1] AAIJ	13BS	LHCB	pp at 7 TeV

[1] Derived from $\Gamma(K^+ K^0)/\Gamma \times B(\overline{b} \to B_c) / (B(B^+ \to K^0 \pi^+)\, B(\overline{b} \to B^+)) < 5.8\%$ at 90% CL using normalization mode $B(B^+ \to K^0 \pi^+) = (23.97 \pm 0.53 \pm 0.71) \times 10^{-6}$ and assuming a B production ratio $f(\overline{b} \to B_u^+) = 0.33$.

$\Gamma(B_s^0 \pi^+ / B(\overline{b} \to B_s))/\Gamma_{\text{total}} \times B(\overline{b} \to B_c)$ — $\Gamma_{20}/\Gamma \times B$

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
$2.37 \pm 0.31 \pm 0.11{}^{+0.17}_{-0.13}$	[1] AAIJ	13BU	LHCB	pp at 7, 8 TeV

[1] The last uncertainty is due to the uncertainty of the B_c^+ lifetime measurument.

POLARIZATION IN B_c^+ DECAY

In decays involving two vector mesons, one can distinguish among the states in which meson polarizations are both longitudinal (L) or both are transverse and parallel ($\parallel$) or perpendicular ($\perp$) to each other with the parameters Γ_L/Γ, $\Gamma_\perp/\Gamma$, and the relative phases $\phi_\parallel$ and $\phi_\perp$. See the definitions in the note on "Polarization in B Decays" review in the B^0 Particle Listings.

Γ_L/Γ in $B_c^+ \to J/\psi D_s^{*+}$

VALUE	DOCUMENT ID		TECN	COMMENT
0.54±0.15 OUR AVERAGE				
0.62±0.24	[1] AAD	16H	ATLS	pp at 7, 8 TeV
0.48±0.20	[2] AAIJ	13AS	LHCB	pp at 7, 8 TeV

[1] AAD 16H measures $1 - \Gamma_L/\Gamma = 0.38 \pm 0.24$.
[2] AAIJ 13AS measures $1 - \Gamma_L/\Gamma = 0.52 \pm 0.20$.

B_c^+ REFERENCES

AAD	16H	EPJ C76 4	G. Aad *et al.*	(ATLAS Collab.)
AAIJ	15AY	PR D92 072007	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15G	PL B742 29	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15M	PRL 114 132001	R. Aaij *et al.*	(LHCb Collab.)
KHACHATRY...	15AA	JHEP 1501 063	V. Khachatryan *et al.*	(CMS Collab.)
AAIJ	14AQ	PRL 113 152003	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14G	EPJ C74 2839	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14P	JHEP 1405 148	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14W	PR D90 032009	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AM	PR D87 071103	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AS	PR D87 112012	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D89 019901 (errat.)	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BS	PL B726 646	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BU	PRL 111 181801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BY	JHEP 1309 075	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13CA	JHEP 1311 094	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13R	JHEP 1302 043	R. Aaij *et al.*	(LHCb Collab.)
AALTONEN	13	PR D87 011101	T. Aaltonen *et al.*	(CDF Collab.)
AAIJ	12AV	PRL 109 232001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12Y	PRL 108 251802	R. Aaij *et al.*	(LHCb Collab.)
ABAZOV	09H	PRL 102 092001	V.M. Abazov *et al.*	(D0 Collab.)
AALTONEN	08M	PRL 100 182002	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	08T	PRL 101 012001	V.M. Abazov *et al.*	(D0 Collab.)
ABULENCIA	06C	PRL 96 082002	A. Abulencia *et al.*	(CDF Collab.)
ABULENCIA	06O	PRL 97 012002	A. Abulencia *et al.*	(CDF Collab.)
ABE	98M	PRL 81 2432	F. Abe *et al.*	(CDF Collab.)
Also		PR D58 112004	F. Abe *et al.*	(CDF Collab.)
ACKERSTAFF	98O	PL B420 157	K. Ackerstaff *et al.*	(OPAL Collab.)
BARATE	98Q	EPJ C4 387	R. Barate *et al.*	(ALEPH Collab.)
PDG	98	EPJ C3 1	C. Caso *et al.*	(PDG Collab.)
ABREU	97E	PL B398 207	P. Abreu *et al.*	(DELPHI Collab.)
BARATE	97H	PL B402 213	R. Barate *et al.*	(ALEPH Collab.)
ABE	96R	PRL 77 5176	F. Abe *et al.*	(CDF Collab.)
PDG	96	PR D54 1	R. M. Barnett *et al.*	(PDG Collab.)