NODE=S060

Ξ_b^0, Ξ_b^-

$I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$ Status: ***
I, J, P need confirmation.

In the quark model, Ξ_b^0 and Ξ_b^- are an isodoublet (usb, dsb) state; the lowest Ξ_b^0 and Ξ_b^- ought to have $J^P = 1/2^+$. None of I, J, or P have actually been measured.

NODE=S060

Ξ_b MASSES

NODE=S060205

Ξ_b^- MASS

NODE=S060M-
NODE=S060M-

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
5797.0 ± 0.6 OUR AVERAGE	Error includes scale factor of 1.7. See the ideogram below.			
5796.70± 0.39± 0.23	AAIJ	19AB	LHCB	pp at 7, 8 and 13 TeV
5797.72± 0.46± 0.31	[1] AAIJ	14BJ	LHCB	pp at 7, 8 TeV
5793.4 ± 1.8 ± 0.7	[2] AALTONEN	14B	CDF	$p\overline{p}$ at 1.96 TeV
5774 ±11 ±15	[3] ABAZOV	07K	D0	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5795.8 ± 0.9 ± 0.4	[4] AAIJ	13AV	LHCB	Repl. by AAIJ 19AB
5796.7 ± 5.1 ± 1.4	[5] AALTONEN	11X	CDF	Repl. by AALTONEN 14B
5790.9 ± 2.6 ± 0.8	[6] AALTONEN	09AP	CDF	Repl. by AALTONEN 14B
5792.9 ± 2.5 ± 1.7	[7] AALTONEN	07A	CDF	Repl. by AALTONEN 09AP

[1] Reconstructed in $\Xi_b^- \to \Xi_c^0\pi^-$, $\Xi_c^0 \to pK^-K^-\pi^+$ decays. Reference Λ_b^0 mass 5619.30 ± 0.34 MeV from AAIJ 14AA.
NODE=S060M-;LINKAGE=B

[2] Uses $\Xi_b^- \to J/\psi\Xi^-$ and $\Xi_c^0\pi^-$ decays.
NODE=S060M-;LINKAGE=AO

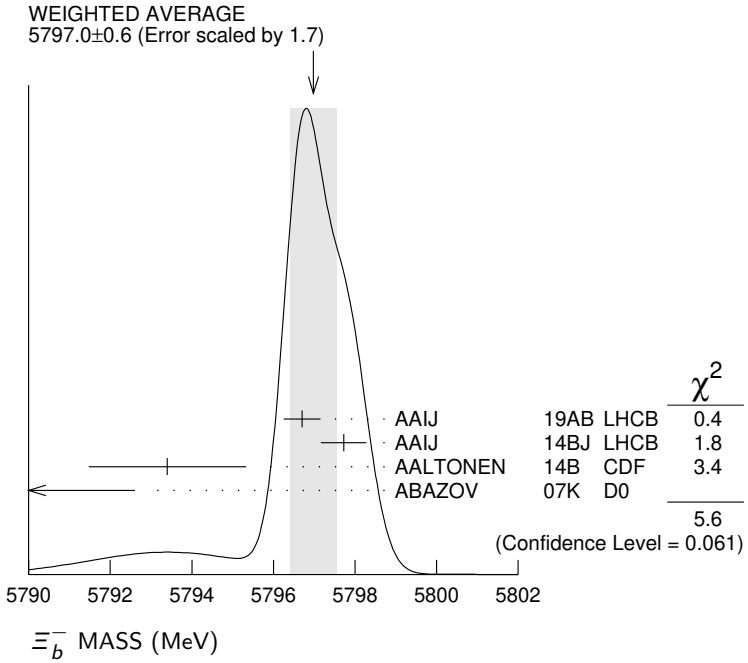
[3] Observed in $\Xi_b^- \to J/\psi\Xi^-$ decays with $15.2 \pm 4.4^{+1.9}_{-0.4}$ candidates, a significance of 5.5 sigma.
NODE=S060M-;LINKAGE=AB

[4] Measured in $\Xi_b^- \to J/\psi\Xi^-$ decays.
NODE=S060M-;LINKAGE=A

[5] Measured in $\Xi_b^- \to \Xi_c^0\pi^-$ with $25.8^{+5.5}_{-5.2}$ candidates.
NODE=S060M-;LINKAGE=AT

[6] Measured in $\Xi_b^- \to J/\psi\Xi^-$ decays with 66^{+14}_{-9} candidates.
NODE=S060M-;LINKAGE=AL

[7] Observed in $\Xi_b^- \to J/\psi\Xi^-$ decays with 17.5 ± 4.3 candidates, a significance of 7.7 sigma.
NODE=S060M-;LINKAGE=AA



Ξ_b^0 MASS

NODE=S060M0
NODE=S060M0

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
5791.9 ±0.5 OUR AVERAGE				
5794.3 ±2.4 ±0.7	AAIJ	14H	LHCB	pp at 7 TeV
5791.80±0.39±0.31	[1] AAIJ	14Z	LHCB	pp at 7, 8 TeV
5788.7 ±4.3 ±1.4	[2] AALTONEN	14B	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5787.8 ±5.0 ±1.3	[3] AALTONEN	11X	CDF	Repl. by AALTONEN 14B

[1] Uses $\Xi_b^0 \to \Xi_c^+ \pi^-$ and $\Xi_c^+ \to p K^- \pi^+$ decays. The measurement comes from the mass difference of Ξ_b^0 and Λ_b^0. NODE=S060M0;LINKAGE=AA

[2] Uses $\Xi_b^0 \to \Xi_c^+ \pi^-$ decays. NODE=S060M0;LINKAGE=AL

[3] Measured in $\Xi_b^0 \to \Xi_c^+ \pi^-$ with $25.3^{+5.6}_{-5.4}$ candidates. NODE=S060M0;LINKAGE=AT

$m_{\Xi_b^-} - m_{\Lambda_b^0}$

NODE=S060DML

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
177.46±0.31 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below. [177.5 ± 0.5 MeV OUR 2020 AVERAGE Scale factor = 1.6]				NEW
177.71±0.24±0.16	[1] AAIJ	21	LHCB	pp at 7, 8, 13 TeV
177.08±0.47±0.16	[2] AAIJ	17BE	LHCB	pp at 7, 8 TeV
176.2 ±0.9 ±0.1	[3] AAIJ	13AV	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
177.73±0.33±0.14	[4] AAIJ	17BE	LHCB	pp at 7, 8 TeV OCCUR=2
178.36±0.46±0.16	[1,5] AAIJ	14BJ	LHCB	Repl. by AAIJ 2021

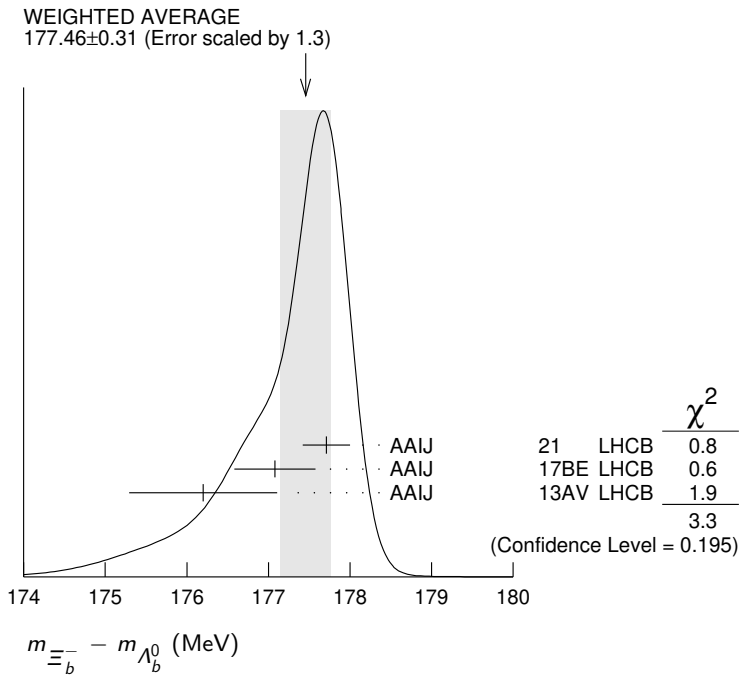
[1] Reconstructed in $\Xi_b^- \to \Xi_c^0 \pi^-$, $\Xi_c^0 \to p K^- K^- \pi^+$ decays.Reference decays $\Lambda_b^0 \to \Lambda_c^+ \pi^-$ were used. NODE=S060DML;LINKAGE=A

[2] Reconstructed in $\Xi_b^- \to J/\psi \Lambda K^-$ decays. Reference decays $\Lambda_b^0 \to J/\psi \Lambda$ were used. NODE=S060DML;LINKAGE=C

[3] Reconstructed in $\Xi_b^- \to J/\psi \Xi^-$ decays. NODE=S060DML;LINKAGE=B

[4] Combination of the original statistically independent measurements of AAIJ 17BE and AAIJ 14BJ taking into account correlation between systematic uncertainties. NODE=S060DML;LINKAGE=E

[5] Combined with AAIJ 17BE. NODE=S060DML;LINKAGE=D



$m_{\Xi_b^0} - m_{\Lambda_b^0}$

NODE=S060DMN

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
172.5 ±0.4 OUR AVERAGE				
174.8 ±2.4 ±0.5	AAIJ	14H	LHCB	pp at 7 TeV
172.44±0.39±0.17	[1] AAIJ	14Z	LHCB	pp at 7, 8 TeV

[1] Uses $\Xi_b^0 \to \Xi_c^+ \pi^-$ and $\Xi_c^+ \to p K^- \pi^+$ decays. NODE=S060DMN;LINKAGE=AA

$m_{\Xi_b^-} - m_{\Xi_b^0}$

NODE=S060DM

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
5.9 ±0.6 OUR AVERAGE				
5.92±0.60±0.23	[1] AAIJ	14BJ	LHCB	pp at 7, 8 TeV
3.1 ±5.6 ±1.3	[2] AALTONEN	11X	CDF	$p\overline{p}$ at 1.96 TeV

[1] Reconstructed in $\Xi_b^- \to \Xi_c^0 \pi^-$, $\Xi_c^0 \to p K^- K^- \pi^+$ decays. Uses $m(\Xi_b^0) - m(\Lambda_b^0) = 172.44 \pm 0.39 \pm 0.17$ MeV from AAIJ 14Z. NODE=S060DM;LINKAGE=A

[2] Derived from measurements in $\Xi_b^0 \to \Xi_c^+ \pi^-$ and $\Xi_b^- \to J/\psi \Xi^-$ from AALTONEN 09AP taking correlated systematic uncertainties into account. NODE=S060DM;LINKAGE=AT

Ξ_b MEAN LIFE

NODE=S060208

NODE=S060208

"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 (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements and asymmetric lifetime errors.

Ξ_b^- MEAN LIFE

NODE=S060T-
NODE=S060T-

VALUE (10^{-12} s)	DOCUMENT ID		TECN	COMMENT
1.572±0.040 OUR EVALUATION				→ UNCHECKED ←
1.57 ±0.04 OUR AVERAGE Error includes scale factor of 1.1.				
1.599±0.041±0.022	[1] AAIJ	14BJ	LHCB	pp at 7, 8 TeV
$1.55\ ^{+0.10}_{-0.09}\ \pm0.03$	[2] AAIJ	14T	LHCB	pp at 7, 8 TeV
1.36 ±0.15 ±0.02	AALTONEN	14B	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.56\ ^{+0.27}_{-0.25}\ \pm0.02$	[3] AALTONEN	09AP	CDF	Repl. by AALTONEN 14B

[1] Reconstructed in $\Xi_b^- \to \Xi_c^0\pi^-$, $\Xi_c^0 \to pK^-K^-\pi^+$ decays. Reference Λ_b^0 lifetime 1.479 ± 0.009 ± 0.010 ps from AAIJ 14U. NODE=S060T-;LINKAGE=B

[2] Measured in $\Xi_b^- \to J/\psi\Xi^-$ decays. NODE=S060T-;LINKAGE=A

[3] Measured in $\Xi_b^- \to J/\psi\Xi^-$ decays with 66^{+14}_{-9} candidates. NODE=S060T-;LINKAGE=AL

Ξ_b^0 MEAN LIFE

NODE=S060T0
NODE=S060T0

VALUE (10^{-12} s)	DOCUMENT ID		TECN	COMMENT
1.480±0.030 OUR EVALUATION				→ UNCHECKED ←
1.477±0.026±0.019	[1] AAIJ	14Z	LHCB	pp at 7, 8 TeV

[1] Uses $\Xi_b^0 \to \Xi_c^+\pi^-$ and $\Xi_c^+ \to pK^-\pi^+$ decays. The measurement comes from the value of relative lifetime of Ξ_b^0 to Λ_b^0. NODE=S060T0;LINKAGE=AA

Ξ_b MEAN LIFE

NODE=S060T
NODE=S060T

VALUE (10^{-12} s)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.48^{+0.40}_{-0.31}\pm0.12$	[1] ABDALLAH	05C	DLPH	$e^+e^- \to Z^0$
$1.35^{+0.37}_{-0.28}{}^{+0.15}_{-0.17}$	[2] BUSKULIC	96T	ALEP	$e^+e^- \to Z$
$1.5\ ^{+0.7}_{-0.4}\ \pm0.3$	[3] ABREU	95V	DLPH	Repl. by ABDALLAH 05C

[1] Used the decay length of Ξ^- accompanied by a lepton of the same sign. NODE=S060T;LINKAGE=AD

[2] Excess $\Xi^-\ell^-$, impact parameters. NODE=S060T;LINKAGE=BU

[3] Excess $\Xi^-\ell^-$, decay lengths. NODE=S060T;LINKAGE=AR

τ_{mix} (1/2π) times the oscillation period

NODE=S060TM0
NODE=S060TM0

VALUE (s)	DOCUMENT ID		TECN	COMMENT
$>13\times10^{-12}$	[1] AAIJ	17BH	LHCB	pp at 7, 8 TeV

[1] Uses Ξ_b^{*-} and $\Xi_b^{\prime-}$ decays to $\Xi_b^0\pi^-$, where $\Xi_b^0 \to \Xi_c^+\pi^-$, $\Xi_c^+ \to pK^-\pi^+$. NODE=S060TM0;LINKAGE=A

MEAN LIFE RATIOS

NODE=S060212

$\tau_{\Xi_b^-}$ / $\tau_{\Lambda_b^0}$ mean life ratio

NODE=S060TR1
NODE=S060TR1

VALUE	DOCUMENT ID		TECN	COMMENT
1.089±0.026±0.011	[1] AAIJ	14BJ	LHCB	pp at 7, 8 TeV

[1] Reconstructed in $\Xi_b^- \to \Xi_c^0\pi^-$, $\Xi_c^0 \to pK^-K^-\pi^+$ decays. Reference $\Lambda_b^0 \to \Lambda_c^+\pi^-$. NODE=S060TR1;LINKAGE=AA

$\tau_{\Xi_b^-}$ / $\tau_{\Xi_b^0}$ mean life ratio

NODE=S060TR2
NODE=S060TR2

VALUE	DOCUMENT ID		TECN	COMMENT
1.083±0.032±0.016	[1] AAIJ	14BJ	LHCB	pp at 7, 8 TeV

[1] Reconstructed in $\Xi_b^- \to \Xi_c^0\pi^-$, $\Xi_c^0 \to pK^-K^-\pi^+$ decays. Uses Ξ_b^0 measurements from AAIJ 14Z. NODE=S060TR2;LINKAGE=AA

Ξ_b DECAY MODES

NODE=S060210;NODE=S060

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	
Γ_1	$\Xi^-\ell^-\overline{\nu}_\ell X\times$ B($\overline{b}\to\ \Xi_b$)	$(3.9\ \pm1.2\ )\times10^{-4}$	S=1.4	DESIG=1
Γ_2	$J/\psi\Xi^-\times$ B($b\to\ \Xi_b^-$)	$(1.02^{+0.26}_{-0.21})\times10^{-5}$		DESIG=2
Γ_3	$J/\psi\Lambda K^-\times$ B($b\to\ \Xi_b^-$)	$(2.5\ \pm0.4\ )\times10^{-6}$		DESIG=17
Γ_4	$pD^0K^-\times$ B($\overline{b}\to\ \Xi_b$)	$(1.7\ \pm0.6\ )\times10^{-6}$		DESIG=3
Γ_5	$p\overline{K}^0\pi^-\times$ B($\overline{b}\to\ \Xi_b$)/B($\overline{b}\to\ B^0$)	$<1.6\times10^{-6}$	CL=90%	DESIG=5
Γ_6	$pK^0K^-\times$ B($\overline{b}\to\ \Xi_b$)/B($\overline{b}\to\ B^0$)	$<1.1\times10^{-6}$	CL=90%	DESIG=6
Γ_7	$pK^-K^-\times$ B($\overline{b}\to\ \Xi_b$)	$(3.7\ \pm0.8\ )\times10^{-8}$		DESIG=15
Γ_8	pK^-K^-	seen		DESIG=14;OUR EVAL;→ UNCHECKED ←
Γ_9	$p\pi^-\pi^-$			DESIG=16
Γ_{10}	$pK^-\pi^-$	seen		DESIG=13;OUR EVAL;→ UNCHECKED ←
Γ_{11}	$\Lambda\pi^+\pi^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<1.7\times10^{-6}$	CL=90%	DESIG=8
Γ_{12}	$\Lambda K^-\pi^+\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<8\times10^{-7}$	CL=90%	DESIG=9
Γ_{13}	$\Lambda K^+K^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<3\times10^{-7}$	CL=90%	DESIG=10
Γ_{14}	$J/\psi\Lambda$	seen		DESIG=23;OUR EVAL;→ UNCHECKED ←
Γ_{15}	$J/\psi\Xi^0$	seen		DESIG=24;OUR EVAL;→ UNCHECKED ←
Γ_{16}	$\Lambda_c^+K^-\times$ B($\overline{b}\to\ \Xi_b$)	$(6\ \ \pm4\ \ )\times10^{-7}$		DESIG=4
Γ_{17}	$\Lambda_b^0\pi^-\times$ B($b\to\ \Xi_b^-$)/B($b\to\ \Lambda_b^0$)	$(5.7\ \pm2.0\ )\times10^{-4}$		DESIG=7
Γ_{18}	$pK^-\pi^+\pi^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.9\ \pm0.4\ )\times10^{-6}$		DESIG=18
Γ_{19}	$pK^-K^-\pi^+\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.73\pm0.32)\times10^{-6}$		DESIG=19
Γ_{20}	$pK^-K^+K^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.8\ \pm1.0\ )\times10^{-7}$		DESIG=20
Γ_{21}	$\Xi_c^0\pi^-$	seen		DESIG=25

Ξ_b BRANCHING RATIOS

NODE=S060215

$\Gamma(\Xi^-\ell^-\overline{\nu}_\ell X\times$ B($\overline{b}\to\ \Xi_b$)$)/\Gamma_{\rm total}$ Γ_1/Γ

NODE=S060R1
NODE=S060R1

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
3.9±1.2 OUR AVERAGE	Error includes scale factor of 1.4.			
3.0±1.0±0.3	ABDALLAH	05C	DLPH	$e^+e^-\to Z^0$
5.4±1.1±0.8	BUSKULIC	96T	ALEP	Excess $\Xi^-\ell^-$ over $\Xi^-\ell^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.9±2.1±1.0	ABREU	95V	DLPH	Repl. by ABDALLAH 05C

$\Gamma(J/\psi\Xi^-\times$ B($b\to\ \Xi_b^-$)$)/\Gamma_{\rm total}$ Γ_2/Γ

NODE=S060R2
NODE=S060R2

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$0.102^{+0.026}_{-0.021}$ OUR AVERAGE				
$0.098^{+0.023}_{-0.016}\pm0.014$	[1] AALTONEN	09AP	CDF	$p\overline{p}$ at 1.96 TeV
0.16 ±0.07 ±0.02	[2] ABAZOV	07K	D0	$p\overline{p}$ at 1.96 TeV

[1] AALTONEN 09AP reports $[\Gamma(\Xi_b\to\ J/\psi\Xi^-\times$ B($b\to\ \Xi_b^-$) $)/\Gamma_{\rm total}]$ / $[$B($\Lambda_b^0\to\ J/\psi(1S)\Lambda\times$ B($b\to\ \Lambda_b^0$) $)] = 0.167^{+0.037}_{-0.025}\pm0.012$ which we multiply by our best value B($\Lambda_b^0\to\ J/\psi(1S)\Lambda\times$ B($b\to\ \Lambda_b^0$) $) = (5.8\pm0.8)\times10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S060R2;LINKAGE=AA

[2] ABAZOV 07K reports $[\Gamma(\Xi_b\to\ J/\psi\Xi^-\times$ B($b\to\ \Xi_b^-$) $)/\Gamma_{\rm total}]$ / $[$B($\Lambda_b^0\to\ J/\psi(1S)\Lambda\times$ B($b\to\ \Lambda_b^0$) $)] = 0.28\pm0.09^{+0.09}_{-0.08}$ which we multiply by our best value B($\Lambda_b^0\to\ J/\psi(1S)\Lambda\times$ B($b\to\ \Lambda_b^0$) $) = (5.8\pm0.8)\times10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S060R2;LINKAGE=AB

$\Gamma(J/\psi\Lambda K^-\times B(b\to\Xi_b^-))/\Gamma_{total}$ Γ_3/Γ

NODE=S060R09
NODE=S060R09

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
2.45±0.19±0.35	[1,2] AAIJ	17BE	LHCB	pp at 7 and 8 TeV

[1] AAIJ 17BE reports $[\Gamma(\Xi_b\to J/\psi\Lambda K^-\times B(b\to\Xi_b^-))/\Gamma_{total}]$ / $[B(\Lambda_b^0\to J/\psi(1S)\Lambda\times B(b\to\Lambda_b^0))] = (4.19\pm0.29\pm0.15)\times10^{-2}$ which we multiply by our best value $B(\Lambda_b^0\to J/\psi(1S)\Lambda\times B(b\to\Lambda_b^0)) = (5.8\pm0.8)\times10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S060R09;LINKAGE=A

[2] Integrated over the b-baryon transverse momentum p_T $<$ 25 GeV and rapidity 2.0 $<$ y $<$ 4.5. NODE=S060R09;LINKAGE=B

$\Gamma(pD^0K^-\times B(\bar{b}\to\Xi_b))/\Gamma_{total}$ Γ_4/Γ

NODE=S060R01
NODE=S060R01

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
1.7±0.4±0.4	[1] AAIJ	14H	LHCB	pp at 7 TeV

[1] AAIJ 14H reports $[\Gamma(\Xi_b\to pD^0K^-\times B(\bar{b}\to\Xi_b))/\Gamma_{total}]$ / $[B(\bar{b}\to b\text{-baryon})]$ / $[B(\Lambda_b^0\to pD^0K^-)] = 0.44\pm0.09\pm0.06$ which we multiply by our best values $B(\bar{b}\to b\text{-baryon}) = (8.4\pm1.1)\times10^{-2}$, $B(\Lambda_b^0\to pD^0K^-) = (4.6\pm0.8)\times10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best values. NODE=S060R01;LINKAGE=A

$\Gamma(p\overline{K}^0\pi^-\times B(\bar{b}\to\Xi_b)/B(\bar{b}\to B^0))/\Gamma_{total}$ Γ_5/Γ

NODE=S060R03
NODE=S060R03

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.6\times10^{-6}$	90	AAIJ	14Q	LHCB	pp at 7 TeV

$\Gamma(pK^0K^-\times B(\bar{b}\to\Xi_b)/B(\bar{b}\to B^0))/\Gamma_{total}$ Γ_6/Γ

NODE=S060R04
NODE=S060R04

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.1\times10^{-6}$	90	AAIJ	14Q	LHCB	pp at 7 TeV

$\Gamma(pK^-K^-\times B(\bar{b}\to\Xi_b))/\Gamma_{total}$ Γ_7/Γ

NODE=S060R08
NODE=S060R08

VALUE (units 10^{-8})	DOCUMENT ID		TECN	COMMENT
3.7±0.8±0.2	[1] AAIJ	17F	LHCB	pp at 7, 8 TeV

[1] AAIJ 17F reports $[\Gamma(\Xi_b\to pK^-K^-\times B(\bar{b}\to\Xi_b))/\Gamma_{total}]$ / $[B(B^+\to K^+K^-K^+)]$ / $[B(\bar{b}\to B^+)] = (2.65\pm0.35\pm0.47)\times10^{-3}$ which we multiply by our best values $B(B^+\to K^+K^-K^+) = (3.40\pm0.14)\times10^{-5}$, $B(\bar{b}\to B^+) = (40.8\pm0.7)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values. NODE=S060R08;LINKAGE=A

$\Gamma(p\pi^-\pi^-)/\Gamma(pK^-K^-)$ Γ_9/Γ_8

NODE=S060R11
NODE=S060R11

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.56	90	[1] AAIJ	17F	LHCB	pp at 7, 8 TeV

OCCUR=3

[1] Measures the ratio as 0.28 ± 0.16 ± 0.13. NODE=S060R11;LINKAGE=A

$\Gamma(pK^-\pi^-)/\Gamma(pK^-K^-)$ Γ_{10}/Γ_8

NODE=S060R10
NODE=S060R10

VALUE	DOCUMENT ID		TECN	COMMENT
0.98±0.27±0.09	AAIJ	17F	LHCB	pp at 7, 8 TeV

$\Gamma(\Lambda\pi^+\pi^-\times B(b\to\Xi_b^0)/B(b\to\Lambda_b^0))/\Gamma_{total}$ Γ_{11}/Γ

NODE=S060R00
NODE=S060R00

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.7\times10^{-6}$	90	AAIJ	16W	LHCB	pp at 7, 8 TeV

$\Gamma(\Lambda K^-\pi^+\times B(b\to\Xi_b^0)/B(b\to\Lambda_b^0))/\Gamma_{total}$ Γ_{12}/Γ

NODE=S060R06
NODE=S060R06

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.8\times10^{-6}$	90	AAIJ	16W	LHCB	pp at 7, 8 TeV

$\Gamma(\Lambda K^+K^-\times B(b\to\Xi_b^0)/B(b\to\Lambda_b^0))/\Gamma_{total}$ Γ_{13}/Γ

NODE=S060R07
NODE=S060R07

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.3\times10^{-6}$	90	AAIJ	16W	LHCB	pp at 7, 8 TeV

$\Gamma(J/\psi\Lambda)/\Gamma(J/\psi\Xi^0)$ Γ_{14}/Γ_{15}

NODE=S060R15
NODE=S060R15

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
8.2±2.1±0.9	[1] AAIJ	20U	LHCB	pp at 7, 8 and 13 TeV

[1] The Cabibbo suppressed $\Xi_b\to J/\psi\Lambda$ decay is observed for the first time. NODE=S060R15;LINKAGE=A

$\Gamma(\Lambda_c^+ K^- \times B(\bar{b} \to \Xi_b))/\Gamma(pD^0 K^- \times B(\bar{b} \to \Xi_b))$ Γ_{16}/Γ_4

NODE=S060R02
NODE=S060R02

VALUE	DOCUMENT ID	TECN	COMMENT
0.36±0.19±0.02	[1] AAIJ 14H	LHCB	pp at 7 TeV

[1] AAIJ 14H reports $[\Gamma(\Xi_b \to \Lambda_c^+ K^- \times B(\bar{b} \to \Xi_b))/\Gamma(\Xi_b \to pD^0 K^- \times B(\bar{b} \to \Xi_b))] \times [B(\Lambda_c^+ \to pK^-\pi^+)] / [B(D^0 \to K^-\pi^+)] = 0.57 \pm 0.22 \pm 0.21$ which we multiply or divide by our best values $B(\Lambda_c^+ \to pK^-\pi^+) = (6.28 \pm 0.32) \times 10^{-2}$, $B(D^0 \to K^-\pi^+) = (3.946 \pm 0.030) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S060R02;LINKAGE=A

$\Gamma(\Lambda_b^0 \pi^- \times B(b \to \Xi_b^-)/B(b \to \Lambda_b^0))/\Gamma_{total}$ Γ_{17}/Γ

NODE=S060R05
NODE=S060R05

VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
$5.7 \pm 1.8^{+0.8}_{-0.9}$	[1] AAIJ 15BA	LHCB	pp at 7, 8 TeV

[1] A signal is reported with a significance of 3.2 standard deviations in the decay chain of $\Xi_b^- \to \Lambda_b^0 \pi^-$, $\Lambda_b^0 \to \Lambda_c^+ \pi^-$, and $\Lambda_c^+ \to pK^-\pi^+$.

NODE=S060R05;LINKAGE=A

$\Gamma(pK^-\pi^+\pi^- \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}$ Γ_{18}/Γ

NODE=S060R12
NODE=S060R12

VALUE (units 10^{-6})	DOCUMENT ID	TECN	COMMENT
1.91±0.35±0.18	[1] AAIJ 18Q	LHCB	pp at 7, 8 TeV

[1] AAIJ 18Q reports $[\Gamma(\Xi_b \to pK^-\pi^+\pi^- \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}] / [B(\Lambda_c^+ \to pK^-\pi^+)] / [B(\Lambda_b^0 \to \Lambda_c^+\pi^-)] = (6.2 \pm 0.8 \pm 0.2 \pm 0.8) \times 10^{-3}$ which we multiply by our best values $B(\Lambda_c^+ \to pK^-\pi^+) = (6.28 \pm 0.32) \times 10^{-2}$, $B(\Lambda_b^0 \to \Lambda_c^+\pi^-) = (4.9 \pm 0.4) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S060R12;LINKAGE=A

$\Gamma(pK^-K^-\pi^+ \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}$ Γ_{19}/Γ

NODE=S060R13
NODE=S060R13

VALUE (units 10^{-6})	DOCUMENT ID	TECN	COMMENT
1.73±0.27±0.16	[1] AAIJ 18Q	LHCB	pp at 7, 8 TeV

[1] AAIJ 18Q reports $[\Gamma(\Xi_b \to pK^-K^-\pi^+ \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}] / [B(\Lambda_c^+ \to pK^-\pi^+)] / [B(\Lambda_b^0 \to \Lambda_c^+\pi^-)] = (5.6 \pm 0.6 \pm 0.4 \pm 0.5) \times 10^{-3}$ which we multiply by our best values $B(\Lambda_c^+ \to pK^-\pi^+) = (6.28 \pm 0.32) \times 10^{-2}$, $B(\Lambda_b^0 \to \Lambda_c^+\pi^-) = (4.9 \pm 0.4) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S060R13;LINKAGE=A

$\Gamma(pK^-K^+K^- \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}$ Γ_{20}/Γ

NODE=S060R14
NODE=S060R14

VALUE (units 10^{-6})	DOCUMENT ID	TECN	COMMENT
0.18±0.09±0.02	[1,2] AAIJ 18Q	LHCB	pp at 7, 8 TeV

[1] AAIJ 18Q reports $[\Gamma(\Xi_b \to pK^-K^+K^- \times B(b \to \Xi_b^0)/B(b \to \Lambda_b^0))/\Gamma_{total}] / [B(\Lambda_c^+ \to pK^-\pi^+)] / [B(\Lambda_b^0 \to \Lambda_c^+\pi^-)] = (0.57 \pm 0.28 \pm 0.08 \pm 0.10) \times 10^{-3}$ which we multiply by our best values $B(\Lambda_c^+ \to pK^-\pi^+) = (6.28 \pm 0.32) \times 10^{-2}$, $B(\Lambda_b^0 \to \Lambda_c^+\pi^-) = (4.9 \pm 0.4) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S060R14;LINKAGE=A

[2] AAIJ 18Q sees excess with a significance of 2.3σ. Using $B(\Lambda_b^0 \to \Lambda_c^+\pi^-) = (0.430 \pm 0.036) \times 10^{-2}$ and $B(\Lambda_c^+ \to pK^-\pi^+) = (6.46 \pm 0.24) \times 10^{-2}$ the authors set two sided limit [0.11–0.25] at 90% C.L.

NODE=S060R14;LINKAGE=B

$\Gamma(\Xi_c^0 \pi^-)/\Gamma_{total}$ Γ_{21}/Γ

NODE=S060R16
NODE=S060R16

VALUE	DOCUMENT ID	TECN	COMMENT
seen	AAIJ 16O	LHCB	pp at 7, 8 TeV

P AND CP VIOLATION

NODE=S060230

$a_P(\Xi_b^0 \to pK^-K^-\pi^+)$

NODE=S060A01

Observable calculated as average of the triple products for Ξ_b^0 and $\bar{\Xi}_b^0$, which is sensitive to parity violation.

NODE=S060A01

VALUE (%)	DOCUMENT ID	TECN	COMMENT
−3.04±5.19±0.36	[1] AAIJ 18AG	LHCB	pp at 7, 8 TeV

NODE=S060A01

[1] Measured over full phase space of the decay.

NODE=S060A01;LINKAGE=A

$a_{CP}(\Xi_b^0 \to p K^- K^- \pi^+)$

NODE=S060A02

Observable calculated as half of the difference between triple products for Ξ_b^0 and $\overline{\Xi}_b^0$, which is sensitive to *CP* violation.

NODE=S060A02

NODE=S060A02

VALUE (%)	DOCUMENT ID		TECN	COMMENT
−3.58±5.19±0.36	[1] AAIJ	18AG	LHCB	*pp* at 7, 8 TeV

[1] Measured over full phase space of the decay.

NODE=S060A02;LINKAGE=A

$\Delta A_{CP}(\Xi_b^0 \to p K^- \pi^+ \pi^-)$

NODE=S060A04

$\Delta A_{CP} \equiv A_{CP}(\Xi_b^0 \to p K^- \pi^+ \pi^-) - A_{CP}(\Xi_b^0 \to (\Xi_c^+ \to p K^- \pi^+)\pi^-)$

NODE=S060A04

NODE=S060A04

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
−17±11±1	[1] AAIJ	19AH	LHCB	*pp* at 7 and 8 TeV

[1] Full phase space.

NODE=S060A04;LINKAGE=A

$\Delta A_{CP}(\Xi_b^0 \to p K^- \pi^+ K^-)$

NODE=S060A05

$\Delta A_{CP} \equiv A_{CP}(\Xi_b^0 \to p K^- \pi^+ K^-) - A_{CP}(\Xi_b^0 \to (\Xi_c^+ \to p K^- \pi^+)\pi^-)$

NODE=S060A05

NODE=S060A05

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
−6.8±8.0±0.8	[1] AAIJ	19AH	LHCB	*pp* at 7 and 8 TeV

[1] Full phase space.

NODE=S060A05;LINKAGE=A

$A_P(\Xi_b)$, Ξ_b^- − Ξ_b^+ production asymmetry

NODE=S060A03

$A_P(\Xi_b) = [\sigma(\Xi_b^-) - \sigma(\Xi_b^+)\,]/[\sigma(\Xi_b^-) + \sigma(\Xi_b^+)]$

NODE=S060A03

NODE=S060A03

VALUE (units 10^{-2})		DOCUMENT ID		TECN	COMMENT
−2 ±4 OUR AVERAGE					
1.1±5.6±1.9	[1,2]	AAIJ	19AB	LHCB	*pp* at 7 and 8 TeV
−3.9±4.9±2.5	[1,2]	AAIJ	19AB	LHCB	*pp* at 13 TeV

OCCUR=2

[1] Baryon kinematic range $p_T < 20$ GeV/c and $2 < \eta < 6$.

NODE=S060A03;LINKAGE=A

[2] Measured using previous measurements of $A_P(\Lambda_b)$ in AAIJ 17BF.

NODE=S060A03;LINKAGE=B

Ξ_b REFERENCES

NODE=S060

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AAIJ	20U	PRL 124 111802	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19AB	PR D99 052006	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19AH	EPJ C79 745	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18AG	JHEP 1808 039	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18Q	JHEP 1802 098	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BE	PL B772 265	R. Aaij *et al.*	(LHCb Collab.)
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AAIJ	17BH	PRL 119 181807	R. Aaij *et al.*	(LHCb Collab.)
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AAIJ	16O	PR D93 092007	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16W	JHEP 1605 081	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15BA	PRL 115 241801	R. Aaij *et al.*	(LHCb Collab.)
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BUSKULIC	96T	PL B384 449	D. Buskulic *et al.*	(ALEPH Collab.)
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