Heavy Flavor Averaging Group - ICHEP 2016

Compilation of Λ_b Branching Fractions ($\times 10^{-6}$) - UL at 90% CL

In PDG2014 New since PDG2014 (preliminary) New since PDG2014 (published)

RPP#	Mode	PDG2014 Avg.	CDF	LHCb	New Avg.
19	$p\pi^-$	$3.5 \pm 0.8 \pm 0.6$	$3.5 \pm 0.8 \pm 0.6$		3.5 ± 1.0
20	pK^-	$5.5 \pm 1.0 \pm 1.0$	$5.5 \pm 1.0 \pm 1.0$		5.5 ± 1.4
21	$\Lambda\mu^+\mu^-$	$1.73 \pm 0.42 \pm 0.55$	$1.73 \pm 0.42 \pm 0.55$	$0.96 \pm 0.16 \pm 0.25$	1.08 ± 0.27
–	$\Lambda\eta$	New		$9.3^{+7.3}_{-5.3}$ $^\diamond$	$9.3^{+7.3}_{-5.3}$
–	$\Lambda\eta'$	New		< 3.1	< 3.1
–	$\Lambda\phi$	New		$5.18 \pm 1.04 \pm 0.35^{+0.67}_{-0.62}$ ‡	$5.18^{+1.29}_{-1.26}$
–	$\bar{K}^0 p\pi^-$	New		$1.26 \pm 0.19 \pm 0.09 \pm 0.34 \pm 0.05$ §	1.26 ± 0.21
–	$K^0 pK^-$	New		$< 3.5(4.0)$ *	$< 3.5(4.0)$ *
–	$\Lambda\pi^+\pi^-$	New		$4.6 \pm 1.2 \pm 1.4 \pm 0.6$ †	4.6 ± 1.8
–	$\Lambda K^+\pi^-$	New		$5.6 \pm 0.8 \pm 0.8 \pm 0.7$ †	5.6 ± 1.1
–	ΛK^+K^-	New		$15.9 \pm 1.2 \pm 1.2 \pm 2.0$ †	15.9 ± 1.7

$^\diamond$ Result at 68% CL interval.
* Limits quoted at 90 (95%) confidence level.
‡ Third uncertainty is related to external inputs.
§ Third uncertainty is from the ratio of fragmentation fractions $f_{\Lambda_b^0}/f_d$, and the fourth is due to the uncertainty on $\mathcal{B}(B^0 \to K^0\pi^+\pi^-)$.
† Last quoted uncertainty is due to the precision with which the normalisation channel branching fraction is known.

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Partial Branching Fractions of $B \to \Lambda\mu^+\mu^-$ decays ($\times 10^{-6}$)

In PDG2014 New since PDG2014 (preliminary) New since PDG2014 (published)

RPP#	Mode	q^2 $[(\mathrm{GeV}/c^2)^2]$ †	PDG2014 Avg.	CDF	LHCb	New Avg.
21	$\Lambda\mu^+\mu^-$ ‡	< 2.0	$0.15 \pm 2.01 \pm 0.05$	$0.15 \pm 2.01 \pm 0.05$	$0.56 \pm 0.76 \pm 0.80$	0.41 ± 0.87
	$\Lambda\mu^+\mu^-$	$[2.0, 4.3]$	$1.8 \pm 1.7 \pm 0.6$	$1.8 \pm 1.7 \pm 0.6$	$0.71 \pm 0.60 \pm 0.10$	0.91 ± 0.55
	$\Lambda\mu^+\mu^-$	$[4.3, 8.68]$	$-0.2 \pm 1.6 \pm 0.1$	$-0.2 \pm 1.6 \pm 0.1$	$0.66 \pm 0.72 \pm 0.16$	0.40 ± 0.62
	$\Lambda\mu^+\mu^-$	$[10.09, 12.86]$	$3.0 \pm 1.5 \pm 1.0$	$3.0 \pm 1.5 \pm 1.0$	$1.55 \pm 0.58 \pm 0.55$	1.96 ± 0.68
	$\Lambda\mu^+\mu^-$	$[14.18, 16.00]$	$1.0 \pm 0.7 \pm 0.3$	$1.0 \pm 0.7 \pm 0.3$	$1.44 \pm 0.44 \pm 0.42$	1.19 ± 0.40
	$\Lambda\mu^+\mu^-$	> 16.00	$7.0 \pm 1.9 \pm 2.2$	$7.0 \pm 1.9 \pm 2.2$	$4.7 \pm 0.8 \pm 1.2$	5.5 ± 1.2

† See the original paper for the exact q^2 selection.
‡ The LHCb measurement was superseded with a more accurate result in different q^2 bins (see list of not-included results).

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Compilation of Ξ_b^0 Branching Fractions ($\times 10^{-6}$)

In PDG2014 New since PDG2014 (preliminary) New since PDG2014 (published)

RPP#	Mode	PDG2014 Avg.	CDF	LHCb	New Avg.
–	$\Lambda\pi^+\pi^-$	New		$< 1.7(2.1)$ †	$< 1.7(2.1)$ †
–	$\Lambda K^+\pi^-$	New		$< 0.8(1.0)$ †	$< 0.8(1.0)$ †
–	ΛK^+K^-	New		$< 0.3(0.4)$ †	$< 0.3(0.4)$ †
–	$\bar{K}^0 p\pi^-$	New		$< 1.6(1.8)$ †	$< 1.6(1.8)$ †
–	$\bar{K}^0 pK^-$	New		$< 1.1(1.2)$ †	$< 1.1(1.2)$ †

† Limits quoted at 90 (95%) confidence level.

Λ_b Branching Fractions: CDF References

[1] CDF Collaboration, (A. Aaltonen *et al.*), Phys. Rev. Lett. **103**, 031801 (2009).

[2] CDF Collaboration, (A. Aaltonen *et al.*), Phys. Rev. Lett. **107**, 201802 (2011).

LHCb References

[3] LHCb Collaboration (R. Aaij *et al.*), Phys. Lett. B **725**, 25 (2013).

[4] LHCb Collaboration (R. Aaij *et al.*), J. High Energ. Phys. **05** (2016) 081.

[5] LHCb Collaboration (R. Aaij *et al.*), J. High Energ. Phys. **04** (2014) 087.

[6] LHCb Collaboration (R. Aaij *et al.*), J. High Energ. Phys. **09** (2015) 006.

[7] LHCb collaboration (R. Aaij *et al.*), arXiv:1603.02870 (2016).

[8] LHCb Collaboration (R. Aaij *et al.*), J. High Energ. Phys. **06** (2015) 115.