

$\Xi_b(5945)^0$

$J^P = \frac{3}{2}^+$

Status: ***

Quantum numbers are based on quark model expectations.

 $\Xi_b(5945)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
5952.3 ± 0.6 OUR AVERAGE			
5952.35 ± 0.02 ± 0.58	^{1,2} AAIJ	23AU LHCB	pp at 7, 8, 13 TeV
5952.3 ± 0.1 ± 0.6	³ AAIJ	16AE LHCB	pp at 7, 8 TeV
5951.4 ± 0.8 ± 0.6	⁴ CHATRCHYAN 12S	CMS	pp at 7 TeV, 5.3 fb ⁻¹

¹ Measured using $\Xi_b(5945)^0 \rightarrow \Xi_b^- \pi^+, \Xi_b^- \rightarrow \Xi_c^0 \pi^-, \Xi_c^0 \rightarrow p K^- K^- \pi^+$ decays.² AAIJ 23AU measures $m(\Xi_b(5945)^0) - m(\Xi_b^-) - m(\pi^+) = 15.80 \pm 0.02 \pm 0.01$ MeV.We have adjusted the measurement to our best values of $m(\Xi_b^-) = 5797.0 \pm 0.6$ MeV, $m(\pi^+) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.³ AAIJ 16AE measures $m(\Xi_b(5945)^0) - m(\Xi_b^-) - m(\pi^+) = 15.727 \pm 0.068 \pm 0.023$ MeV.We have adjusted the measurement to our best values of $m(\Xi_b^-) = 5797.0 \pm 0.6$ MeV, $m(\pi^+) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.⁴ CHATRCHYAN 12S measures $m(\Xi_b(5945)^0) - m(\Xi_b^-) - m(\pi^+) = 14.84 \pm 0.74 \pm$ 0.28 MeV. We have adjusted the measurement to our best values of $m(\Xi_b^-) = 5797.0 \pm 0.6$ MeV, $m(\pi^+) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values. $\Xi_b(5945)^0$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
0.87 ± 0.06 ± 0.05	¹ AAIJ	23AU LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.90 ± 0.16 ± 0.08	¹ AAIJ	16AE LHCB	pp at 7, 8 TeV
2.1 ± 1.7	² CHATRCHYAN 12S	CMS	pp at 7 TeV, 5.3 fb ⁻¹

¹ Measured using $\Xi_b(5945)^0 \rightarrow \Xi_b^- \pi^+, \Xi_b^- \rightarrow \Xi_c^0 \pi^-, \Xi_c^0 \rightarrow p K^- K^- \pi^+$ decays.² Systematic uncertainty not evaluated. $\Xi_b(5945)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Xi_b^- \pi^+$	seen

$\Xi_b(5945)^0$ BRANCHING RATIOS

$\Gamma(\Xi_b^- \pi^+)/\Gamma_{\text{total}}$				Γ_1/Γ
<i>VALUE</i>	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	
seen	AAIJ	16AE ATLS	pp at 7, 8 TeV	
seen	CHATRCHYAN 12S	CMS	pp at 7 TeV, 5.3 fb^{-1}	

$\Xi_b(5945)^0$ REFERENCES

AAIJ	23AU PRL 131 171901	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	16AE JHEP 1605 161	R. Aaij <i>et al.</i>	(LHCb Collab.)
CHATRCHYAN 12S	PRL 108 252002	S. Chatrchyan <i>et al.</i>	(CMS Collab.)