

$\Xi_b(5945)^0$

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

Status: ***

Quantum numbers are based on quark model expectations.

NODE=B161

NODE=B161

NODE=B161M

NODE=B161M

SYCLP=A

OCCUR=2;SYCLP=A

SYCLP=A

SYCLP=A

NODE=B161M;LINKAGE=E

NODE=B161M;LINKAGE=C

NODE=B161M;LINKAGE=D

NODE=B161M;LINKAGE=A

NODE=B161M;LINKAGE=CH

 $\Xi_b(5945)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
5952.3 ± 0.6 OUR AVERAGE			
5952.4 ± 0.1 ± 0.6	¹ HAYRAPETY...24R	CMS	pp at 13 TeV
5952.35 ± 0.02 ± 0.58	^{2,3} AAIJ	23AU LHCb	pp at 7, 8, 13 TeV
5952.3 ± 0.1 ± 0.6	⁴ AAIJ	16AE LHCb	pp at 7, 8 TeV
5951.4 ± 0.8 ± 0.6	⁵ CHATRCHYAN 12S	CMS	pp at 7 TeV, 5.3 fb ⁻¹
¹ HAYRAPETYAN 24R measures $m(\Xi_b(5945)^0) - m(\Xi_b^-) - m(\pi^+) = 15.810 \pm 0.077 \pm 0.052$ 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.			
² 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.			
³ 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.			
⁴ 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.			
⁵ 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 ± 0.07 OUR AVERAGE			
$0.87^{+0.22}_{-0.20} \pm 0.16$	HAYRAPETY...24R	CMS	pp at 13 TeV
$0.87 \pm 0.06 \pm 0.05$	¹ AAIJ	23AU LHCb	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.90 \pm 0.16 \pm 0.08$	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.			

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NODE=B161W;LINKAGE=CH

 $\Xi_b(5945)^0$ DECAY MODES

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

NODE=B161215;NODE=B161

DESIG=1

 $\Xi_b(5945)^0$ BRANCHING RATIOS

$\Gamma(\Xi_b^- \pi^+)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	Γ_1/Γ
seen	¹ HAYRAPETY...24R	CMS	pp at 13 TeV	
seen	AAIJ	16AE ATLS	pp at 7, 8 TeV	
seen	CHATRCHYAN 12S	CMS	pp at 7 TeV, 5.3 fb ⁻¹	
¹ HAYRAPETYAN 24R measures $B(\Xi_b(5945)^0 \rightarrow \Xi_b^- \pi^+) \times B(b \rightarrow \Xi_b(5945)^0 X) / B(b \rightarrow \Xi_b^- X) = 0.22 \pm 0.02 \pm 0.02$.				

NODE=B161220

NODE=B161R01

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NODE=B161R01;LINKAGE=A

$\Xi_b(5945)^0$ REFERENCES

HAYRAPETY... 24R	PR D110 012002	A. Hayrapetyan <i>et al.</i>	(CMS Collab.)
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.)

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