

$\Xi_b(6227)^-$ $J^P = ??$

Status: ***

 $\Xi_b(6227)^-$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
6227.9±0.9±0.2	¹ AAIJ	21	LHCB pp at 7, 8, 13 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
6226.9±2.0±0.4	^{2,3} AAIJ	18H	LHCB Repl. by AAIJ 2021
¹ AAIJ 21 measures $m(\Xi_b(6227)^-) - m(\Lambda_b^0) = 608.3 \pm 0.8 \pm 0.4$ MeV. We have adjusted the measurement to our best value of $m(\Lambda_b^0) = 5619.60 \pm 0.17$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.			
² Uses $\Lambda_b^0 K^-$ and $\Xi_b^0 \pi^-$ modes.			
³ Measures mass difference $m(\Xi_b(6227)^-) - m(\Lambda_b^0) = 607.3 \pm 2.0 \pm 0.3$ MeV and uses $m(\Lambda_b^0) = 5619.58 \pm 0.17$ MeV.			

 $\Xi_b(6227)^-$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
19.9±2.1±1.5	¹ AAIJ	21	LHCB pp at 7, 8, 13 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
18.1±5.4±1.8	² AAIJ	18H	LHCB Repl. by AAIJ 2021
¹ Uses $\Lambda_b^0 K^-$ decays.			
² Uses $\Lambda_b^0 K^-$ and $\Xi_b^0 \pi^-$ modes.			

 $\Xi_b(6227)^-$ DECAY MODES

Mode	Fraction (Γ_i/Γ)	Scale factor
Γ_1 $\Lambda_b^0 K^- \times B(b \rightarrow \Xi_b(6227))/B(b \rightarrow \Lambda_b^0)$	$(3.20 \pm 0.35) \times 10^{-3}$	
Γ_2 $\Xi_b^0 \pi^- \times B(b \rightarrow \Xi_b(6227))/B(b \rightarrow \Xi_b^0)$	$(2.8 \pm 1.1) \%$	1.8

 $\Xi_b(6227)^-$ BRANCHING RATIOS

$\Gamma(\Lambda_b^0 K^- \times B(b \rightarrow \Xi_b(6227))/B(b \rightarrow \Lambda_b^0))/\Gamma_{\text{total}}$	Γ_1/Γ		
VALUE (units 10^{-3})	DOCUMENT ID	TECN	COMMENT
3.20±0.35 OUR AVERAGE			
3.0 ± 0.3 ± 0.4	AAIJ	18H	LHCB pp at 7, 8 TeV
3.4 ± 0.3 ± 0.4	AAIJ	18H	LHCB pp at 13 TeV

$\Gamma(\Xi_b^0 \pi^- \times B(b \rightarrow \Xi_b(6227)) / B(b \rightarrow \Xi_b^0)) / \Gamma_{\text{total}}$	Γ_2 / Γ
VALUE (units 10^{-3})	DOCUMENT ID TECN COMMENT
28 ± 11 OUR AVERAGE	Error includes scale factor of 1.8.
$47 \pm 10 \pm 7$	AAIJ 18H LHCB <i>pp</i> at 7, 8 TeV
$22 \pm 6 \pm 3$	AAIJ 18H LHCB <i>pp</i> at 13 TeV

$\Xi_b(6227)^-$ REFERENCES

AAIJ 21	PR D103 012004	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ 18H	PRL 121 072002	R. Aaij <i>et al.</i>	(LHCb Collab.)