

$\Lambda_b(5920)^0$

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

Status: ***

Quantum numbers are based on quark model expectations.

$\Lambda_b(5920)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
5920.09 ± 0.17 OUR AVERAGE			
5920.09 ± 0.02 ± 0.17	¹ AAIJ	20Q LHCb	pp at 7, 8, 13 TeV
5920.16 ± 0.07 ± 0.17	² SIRUNYAN	20K CMS	pp at 13 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
5919.4 ± 0.5 ± 0.2	^{3,4} AALTONEN	13V CDF	$p\bar{p}$ at 1.96 TeV
5920.00 ± 0.09 ± 0.17	^{5,6} AAIJ	12AL LHCb	Repl. by AAIJ 20Q

¹ AAIJ 20Q measures $m(\Lambda_b(5920)^0) - m(\Lambda_b^0) = 300.492 \pm 0.019 \pm 0.010$ 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 SIRUNYAN 20K measures $m(\Lambda_b(5920)^0) - m(\Lambda_b^0) = 300.56 \pm 0.07 \pm 0.01$ 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.

³ Measured in $\Lambda_b(5920)^0 \rightarrow \Lambda_b^0 \pi^+ \pi^-$ decays with $17.3^{+5.3}_{-4.6}$ events, with a significance of 3.5 sigma.

⁴ AALTONEN 13V measures $m(\Lambda_b(5920)^0) - m(\Lambda_b^0) - 2m(\pi) = 20.68 \pm 0.35 \pm 0.30$ MeV. We have adjusted the measurement to our best values of $m(\Lambda_b^0) = 5619.60 \pm 0.17$ MeV and $m(\pi) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.

⁵ Observed in $\Lambda_b(5920)^0 \rightarrow \Lambda_b^0 \pi^+ \pi^-$ decays with 52.5 ± 8.1 candidates with a significance of 10.2 sigma.

⁶ AAIJ 12AL measures $m(\Lambda_b(5920)^0) - m(\Lambda_b^0) = 300.40 \pm 0.08 \pm 0.04$ 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.

$\Lambda_b(5920)^0$ WIDTH

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
<0.19	90	AAIJ	20Q LHCb	pp at 7, 8, 13 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
<0.63	90	AAIJ	12AL LHCb	Repl. by AAIJ 20Q

$\Lambda_b(5920)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Lambda_b^0 \pi^+ \pi^-$	seen

$\Lambda_b(5920)^0$ BRANCHING RATIOS

$\Gamma(\Lambda_b^0 \pi^+ \pi^-) / \Gamma_{\text{total}}$				Γ_1 / Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
seen	AAIJ	20Q	LHCB	pp at 7, 8, 13 TeV
seen	SIRUNYAN	20K	LHCB	pp at 13 TeV
seen	AALTONEN	13V	CDF	$p\bar{p}$ at 1.96 TeV
seen	AAIJ	12AL	LHCB	pp at 7 TeV

 $\Lambda_b(5920)^0$ REFERENCES

AAIJ	20Q	JHEP 2006 136	R. Aaij <i>et al.</i>	(LHCb Collab.)
SIRUNYAN	20K	PL B803 135345	A.M. Sirunyan <i>et al.</i>	(CMS Collab.)
AALTONEN	13V	PR D88 071101	T. Aaltonen <i>et al.</i>	(CDF Collab.)
AAIJ	12AL	PRL 109 172003	R. Aaij <i>et al.</i>	(LHCb Collab.)