

$\Lambda_b(5920)^0$ 

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

Status: \*\*\*

Quantum numbers are based on quark model expectations.

### $\Lambda_b(5920)^0$ MASS

| VALUE (MeV)   | DOCUMENT ID             | TECN      | COMMENT                |
|---|-------------------------|-----------|------------------------|
| <b>5920.09 ± 0.17 OUR AVERAGE</b>   |                         |           |                        |
| 5920.09 ± 0.02 ± 0.17   | <sup>1</sup> AAIJ       | 20Q LHCb  | $pp$ at 7, 8, 13 TeV   |
| 5920.16 ± 0.07 ± 0.17   | <sup>2</sup> 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  | <sup>3,4</sup> AALTONEN | 13V CDF   | $p\bar{p}$ at 1.96 TeV |
| 5920.00 ± 0.09 ± 0.17   | <sup>5,6</sup> AAIJ     | 12AL LHCb | Repl. by AAIJ 20Q      |

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

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

<sup>6</sup> 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              |
|---|-----|-------------|-----------|----------------------|
| <b>&lt;0.19</b>   | 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 ( $\Gamma_i/\Gamma$ ) |
|------------------------------------|--------------------------------|
| $\Gamma_1 \Lambda_b^0 \pi^+ \pi^-$ | seen                           |

$\Lambda_b(5920)^0$  BRANCHING RATIOS

| $\Gamma(\Lambda_b^0 \pi^+ \pi^-) / \Gamma_{\text{total}}$ |                    |             |                | $\Gamma_1 / \Gamma$    |
|---|--------------------|-------------|----------------|------------------------|
| <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 |
| <b>seen</b>   | 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.) |