# $\Xi_b^0$, $\Xi_b^-$

$I(J^P) = 0(\frac{1}{2}^+)$ Status: *

OMITTED FROM SUMMARY TABLE

ABREU 95V observe an excess of same-sign $\Xi^{\mp}\ell^{\mp}$ events in jets, which they interpret as $\Xi_b \to \Xi^-\ell^-\overline{\nu}_\ell X$. They find that the probability for these events to come from non-$b$-baryon decays is less than $5 \times 10^{-4}$ and that $\Lambda_b$ decays can account for less than 10% of these events.

In the quark model, $\Xi_b^0$ and $\Xi_b^-$ are an isodoublet ($usb$, $dsb$) state; the lowest $\Xi_b^0$ and $\Xi_b^-$ ought to have $J^P = 1/2^+$. None of $I$, $J$, or $P$ have actually been measured.

## $\Xi_b$ MEAN LIFE

This is actually a measurement of the average lifetime of $b$-baryons that decay to a jet containing a same-sign $\Xi^{\mp}\ell^{\mp}$ pair. Presumably the mix is mainly $\Xi_b$, with some $\Lambda_b$.

| VALUE ($10^{-12}$ s) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $1.5^{+0.7}_{-0.4} \pm 0.3$ | 8 | ABREU | 95V | DLPH | Excess $\Xi^-\ell^-$, decay lengths |

## $\Xi_b$ DECAY MODES

| | Mode | Fraction ($\Gamma_i/\Gamma$) |
|---|---|---|
| $\Gamma_1$ | $\Xi^+\ell^+\overline{\nu}_\ell$ anything | seen |

## $\Xi_b$ BRANCHING RATIOS

### $\Gamma(\Xi^+\ell^+\overline{\nu}_\ell \text{anything})/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma$

| VALUE | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| seen | ABREU | 95V | DLPH | Excess $\Xi^-\ell^-$ over $\Xi^-\ell^+$ |

## $\Xi_b$ REFERENCES

ABREU 95V ZPHY C68 541 +Adam, Adye, Agasi+ (DELPHI Collab.)