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

**OMITTED FROM SUMMARY TABLE**

ABREU 95V observe an excess of same-sign \( \Xi^\mp \ell^\mp \) events in jets, which they interpret as \( \Xi_b \rightarrow \Xi^- \ell^- \overline{\nu}_\ell X \). 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, \( \Xi^0_b \) and \( \Xi^-_b \) are an isodoublet (\( usb, dsb \)) state; the lowest \( \Xi^0_b \) and \( \Xi^-_b \) ought to have \( J^P = \frac{1}{2}^+ \). 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 \( \Lambda_b \).

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFAG) and are described at http://www.slac.stanford.edu/xorg/hfag/. The averaging/rescaling procedure takes into account corrections between the measurements and asymmetric lifetime errors.

<table>
<thead>
<tr>
<th>VALUE ((10^{-12} \text{ s}))</th>
<th>EVTS</th>
<th>DOCUMENT ID</th>
<th>TECN</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1.39 \pm 0.34)</td>
<td>1.35 ( \pm 0.37 \pm 0.15) ( -0.28 -0.17)</td>
<td>1 BUSKULIC</td>
<td>96T ALEP</td>
<td>( e^+ e^- \rightarrow Z)</td>
</tr>
<tr>
<td>(1.5) ( \pm 0.7) ( -0.4) ( \pm 0.3)</td>
<td>8</td>
<td>2 ABREU</td>
<td>95V DLP H</td>
<td>( e^+ e^- \rightarrow Z)</td>
</tr>
</tbody>
</table>

1 Excess \( \Xi^- \ell^- \), impact parameters.  
2 Excess \( \Xi^- \ell^- \), decay lengths.

### \( \Xi_b \) DECAY MODES

<table>
<thead>
<tr>
<th>Mode</th>
<th>Fraction ((\Gamma_i/\Gamma))</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Gamma_1)</td>
<td>( \Xi^- \ell^- \overline{\nu}_\ell ) anything</td>
</tr>
</tbody>
</table>

### \( \Xi_b \) BRANCHING RATIOS

\( \Gamma(\Xi^- \ell^- \overline{\nu}_\ell \) anything\)/\( \Gamma_{\text{total}}\)

<table>
<thead>
<tr>
<th>VALUE</th>
<th>DOCUMENT ID</th>
<th>TECN</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>seen</td>
<td>3 BUSKULIC</td>
<td>96T ALEP</td>
<td>Excess ( \Xi^- \ell^- ) over ( \Xi^- \ell^+ )</td>
</tr>
<tr>
<td>seen</td>
<td>ABREU</td>
<td>95V DLP</td>
<td>Excess ( \Xi^- \ell^- ) over ( \Xi^- \ell^+ )</td>
</tr>
</tbody>
</table>

\(^3\) BUSKULIC 96T measures \( [B(b \rightarrow \Xi_b) \times B(\Xi_b \rightarrow \Xi^- \ell^- \overline{\nu}_\ell \) anything\)] = \((5.4 \pm 1.1 \pm 0.8) \times 10^{-4}\) per lepton species, averaged over \( e \) and \( \mu \).
<table>
<thead>
<tr>
<th>BUSKULIC</th>
<th>96T</th>
<th>PL B384 449</th>
<th>D. Buskulic et al.</th>
<th>(ALEPH Collab.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABREU</td>
<td>95V</td>
<td>ZPHY C68 541</td>
<td>P. Abreu et al.</td>
<td>(DELPHI Collab.)</td>
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