

# $\Xi(2370)$

$I(J^P) = \frac{1}{2}(??)$  Status: \*\*  
*J, P* need confirmation.

OMITTED FROM SUMMARY TABLE

## $\Xi(2370)$ MASS

| <u>VALUE (MeV)</u>         | <u>EVTS</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u>                      |
|----------------------------|-------------|--------------------|-------------|------------|-------------------------------------|
| <b>≈ 2370 OUR ESTIMATE</b> |             |                    |             |            |                                     |
| 2356 ± 10                  |             | JENKINS            | 83          | MPS        | – $K^- p \rightarrow K^+ \text{MM}$ |
| 2370                       | 50          | HASSALL            | 81          | HBC        | –0 $K^- p$ 6.5 GeV/ <i>c</i>        |
| 2373 ± 8                   | 94          | AMIRZADEH          | 80          | HBC        | –0 $K^- p$ 8.25 GeV/ <i>c</i>       |
| 2392 ± 27                  |             | DIBIANCA           | 75          | DBC        | $\Xi 2\pi$                          |

## $\Xi(2370)$ WIDTH

| <u>VALUE (MeV)</u> | <u>EVTS</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u>                |
|--------------------|-------------|--------------------|-------------|------------|-------------------------------|
| 80                 | 50          | HASSALL            | 81          | HBC        | –0 $K^- p$ 6.5 GeV/ <i>c</i>  |
| 80 ± 25            | 94          | AMIRZADEH          | 80          | HBC        | –0 $K^- p$ 8.25 GeV/ <i>c</i> |
| 75 ± 69            |             | DIBIANCA           | 75          | DBC        | $\Xi 2\pi$                    |

## $\Xi(2370)$ DECAY MODES

| Mode   | Fraction ( $\Gamma_i/\Gamma$ ) |
|--|--------------------------------|
| $\Gamma_1$ $\Lambda \bar{K} \pi$<br>Includes $\Gamma_4 + \Gamma_6$ . | seen                           |
| $\Gamma_2$ $\Sigma \bar{K} \pi$<br>Includes $\Gamma_5 + \Gamma_6$ .  | seen                           |
| $\Gamma_3$ $\Omega^- K$  |                                |
| $\Gamma_4$ $\Lambda \bar{K}^*(892)$                                  |                                |
| $\Gamma_5$ $\Sigma \bar{K}^*(892)$                                   |                                |
| $\Gamma_6$ $\Sigma(1385) \bar{K}$                                    |                                |

## $\Xi(2370)$ BRANCHING RATIOS

| <b><math>\Gamma(\Lambda \bar{K} \pi)/\Gamma_{\text{total}}</math></b>                                |                    |                    |             |                               | <b><math>\Gamma_1/\Gamma</math></b>              |
|--|--------------------|--------------------|-------------|-------------------------------|--|
| <u>VALUE</u>   | <u>DOCUMENT ID</u> | <u>TECN</u>        | <u>CHG</u>  | <u>COMMENT</u>                |  |
| <b>seen</b>  | AMIRZADEH          | 80                 | HBC         | –0 $K^- p$ 8.25 GeV/ <i>c</i> |  |
| <b><math>\Gamma(\Sigma \bar{K} \pi)/\Gamma_{\text{total}}</math></b>                                 |                    |                    |             |                               | <b><math>\Gamma_2/\Gamma</math></b>              |
| <u>VALUE</u>   | <u>DOCUMENT ID</u> | <u>TECN</u>        | <u>CHG</u>  | <u>COMMENT</u>                |  |
| <b>seen</b>  | AMIRZADEH          | 80                 | HBC         | –0 $K^- p$ 8.25 GeV/ <i>c</i> |  |
| <b><math>[\Gamma(\Lambda \bar{K} \pi) + \Gamma(\Sigma \bar{K} \pi)]/\Gamma_{\text{total}}</math></b> |                    |                    |             |                               | <b><math>(\Gamma_1 + \Gamma_2)/\Gamma</math></b> |
| <u>VALUE</u>   | <u>EVTS</u>        | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>CHG</u>                    | <u>COMMENT</u>                                   |
| <b>seen</b>  | 50                 | HASSALL            | 81          | HBC                           | –0 $K^- p$ 6.5 GeV/ <i>c</i>                     |

| $\Gamma(\Omega^- K)/\Gamma_{\text{total}}$ |                     |             |            |                | $\Gamma_3/\Gamma$  |
|--|---------------------|-------------|------------|----------------|--------------------|
| <u>VALUE</u>                               | <u>DOCUMENT ID</u>  | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u> |                    |
| 0.09±0.04                                  | <sup>1</sup> KINSON | 80          | HBC        | —              | $K^- p$ 8.25 GeV/c |

  

| $[\Gamma(\Lambda \bar{K}^*(892)) + \Gamma(\Sigma \bar{K}^*(892))]/\Gamma_{\text{total}}$ |                     |             |            |                | $(\Gamma_4 + \Gamma_5)/\Gamma$ |
|--|---------------------|-------------|------------|----------------|--------------------------------|
| <u>VALUE</u>   | <u>DOCUMENT ID</u>  | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u> |                                |
| 0.22±0.13  | <sup>1</sup> KINSON | 80          | HBC        | —              | $K^- p$ 8.25 GeV/c             |

  

| $\Gamma(\Sigma(1385)\bar{K})/\Gamma_{\text{total}}$ |                     |             |            |                | $\Gamma_6/\Gamma$  |
|---|---------------------|-------------|------------|----------------|--------------------|
| <u>VALUE</u>  | <u>DOCUMENT ID</u>  | <u>TECN</u> | <u>CHG</u> | <u>COMMENT</u> |                    |
| 0.12±0.08   | <sup>1</sup> KINSON | 80          | HBC        | —              | $K^- p$ 8.25 GeV/c |

### $\Xi(2370)$ FOOTNOTES

<sup>1</sup> KINSON 80 is a reanalysis of AMIRZADEH 80 with 50% more events.

### $\Xi(2370)$ REFERENCES

|           |    |                   |                            |                       |
|-----------|----|-------------------|----------------------------|-----------------------|
| JENKINS   | 83 | PRL 51 951        | C.M. Jenkins <i>et al.</i> | (FSU, BRAN, LBL+)     |
| HASSALL   | 81 | NP B189 397       | J.K. Hassall <i>et al.</i> | (CAVE, MSU)           |
| AMIRZADEH | 80 | PL 90B 324        | J. Amirzadeh <i>et al.</i> | (BIRM, CERN, GLAS+) I |
| KINSON    | 80 | Toronto Conf. 263 | J.B. Kinson <i>et al.</i>  | (BIRM, CERN, GLAS+) I |
| DIBIANCA  | 75 | NP B98 137        | F.A. Dibianca, R.J. Endorf | (CMU)                 |