

**$\Sigma(3170)$  Bumps**

$$I(J^P) = 1(?^?) \quad \text{Status: } *$$

## OMITTED FROM SUMMARY TABLE

Seen by AMIRZADEH 79 as a narrow 6.5-standard-deviation enhancement in the reaction  $K^- p \rightarrow Y^{*+} \pi^-$  using data from independent high statistics bubble chamber experiments at 8.25 and 6.5 GeV/c. The dominant decay modes are multibody, multistrange final states and the production is via isospin-3/2 baryon exchange. Isospin 1 is favored.

Not seen in a  $K^- p$  experiment in LASS at 11 GeV/c (ASTON 85B).

### $\Sigma(3170)$ MASS (PRODUCTION EXPERIMENTS)

| VALUE (MeV)                 | EVTS | DOCUMENT ID  | TECN | COMMENT                          |
|-----------------------------|------|--------------|------|----------------------------------|
| $\approx 3170$ OUR ESTIMATE |      |              |      |                                  |
| $3170 \pm 5$                | 35   | AMIRZADEH 79 | HBC  | $K^- p \rightarrow Y^{*+} \pi^-$ |

### $\Sigma(3170)$ WIDTH (PRODUCTION EXPERIMENTS)

| VALUE (MeV) | EVTS | DOCUMENT ID               | TECN | COMMENT                          |
|-------------|------|---------------------------|------|----------------------------------|
| $< 20$      | 35   | <sup>1</sup> AMIRZADEH 79 | HBC  | $K^- p \rightarrow Y^{*+} \pi^-$ |

### $\Sigma(3170)$ DECAY MODES (PRODUCTION EXPERIMENTS)

| Mode                                      | Fraction ( $\Gamma_i/\Gamma$ ) |
|---|--------------------------------|
| $\Gamma_1 \quad \Lambda K \bar{K} \pi$ 's | seen                           |
| $\Gamma_2 \quad \Sigma K \bar{K} \pi$ 's  | seen                           |
| $\Gamma_3 \quad \Xi K \pi$ 's             | seen                           |

### $\Sigma(3170)$ BRANCHING RATIOS (PRODUCTION EXPERIMENTS)

| $\Gamma(\Lambda K \bar{K} \pi \text{'s})/\Gamma_{\text{total}}$ | $\Gamma_1/\Gamma$ |      |                                  |
|---|-------------------|------|----------------------------------|
| VALUE   | DOCUMENT ID       | TECN | COMMENT                          |
| seen  | AMIRZADEH 79      | HBC  | $K^- p \rightarrow Y^{*+} \pi^-$ |
| $\Gamma(\Sigma K \bar{K} \pi \text{'s})/\Gamma_{\text{total}}$  | $\Gamma_2/\Gamma$ |      |                                  |
| VALUE   | DOCUMENT ID       | TECN | COMMENT                          |
| seen  | AMIRZADEH 79      | HBC  | $K^- p \rightarrow Y^{*+} \pi^-$ |
| $\Gamma(\Xi K \pi \text{'s})/\Gamma_{\text{total}}$             | $\Gamma_3/\Gamma$ |      |                                  |
| VALUE   | DOCUMENT ID       | TECN | COMMENT                          |
| seen  | AMIRZADEH 79      | HBC  | $K^- p \rightarrow Y^{*+} \pi^-$ |

**$\Sigma(3170)$  FOOTNOTES  
(PRODUCTION EXPERIMENTS)**

<sup>1</sup> Observed width consistent with experimental resolution.

---

**$\Sigma(3170)$  REFERENCES  
(PRODUCTION EXPERIMENTS)**

|           |     |                   |                            |                          |
|-----------|-----|-------------------|----------------------------|--------------------------|
| ASTON     | 85B | PR D32 2270       | D. Aston <i>et al.</i>     | (SLAC, CARL, CNRC, CINC) |
| AMIRZADEH | 79  | PL 89B 125        | J. Amirzadeh <i>et al.</i> | (BIRM, CERN, GLAS+) I    |
| Also      |     | Toronto Conf. 263 | J.B. Kinson <i>et al.</i>  | (BIRM, CERN, GLAS+) I    |

---