

$\Sigma(2070) 5/2^+$  $I(J^P) = 1(\frac{5}{2}^+)$  Status: \*

## OMITTED FROM SUMMARY TABLE

This state suggested by BERTHON 70B finds support in GOPAL 80 with new  $K^- p$  polarization and  $K^- n$  angular distributions. The very broad state seen in KANE 72 is not required in the later (KANE 74) analysis of  $\bar{K}N \rightarrow \Sigma\pi$ .

 $\Sigma(2070)$  MASS

| <u>VALUE (MeV)</u>                            | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                       |
|---|--------------------|-------------|--------------------------------------|
| <b><math>\approx 2070</math> OUR ESTIMATE</b> |                    |             |                                      |
| 2051 $\pm$ 25                                 | GOPAL              | 80          | DPWA $\bar{K}N \rightarrow \bar{K}N$ |
| 2057  | KANE               | 72          | DPWA $K^- p \rightarrow \Sigma\pi$   |
| 2070 $\pm$ 10                                 | BERTHON            | 70B         | DPWA $K^- p \rightarrow \Sigma\pi$   |

 $\Sigma(2070)$  WIDTH

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                       |
|--------------------|--------------------|-------------|--------------------------------------|
| 300 $\pm$ 30       | GOPAL              | 80          | DPWA $\bar{K}N \rightarrow \bar{K}N$ |
| 906                | KANE               | 72          | DPWA $K^- p \rightarrow \Sigma\pi$   |
| 140 $\pm$ 20       | BERTHON            | 70B         | DPWA $K^- p \rightarrow \Sigma\pi$   |

 $\Sigma(2070)$  DECAY MODES

| Mode       |             |
|------------|-------------|
| $\Gamma_1$ | $N\bar{K}$  |
| $\Gamma_2$ | $\Sigma\pi$ |

 $\Sigma(2070)$  BRANCHING RATIOS

See "Sign conventions for resonance couplings" in the Note on  $\Lambda$  and  $\Sigma$  Resonances.

| $\Gamma(N\bar{K})/\Gamma_{\text{total}}$ | <u>VALUE</u>    | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                       | $\Gamma_1/\Gamma$ |
|--|-----------------|--------------------|-------------|--------------------------------------|-------------------|
|  | 0.08 $\pm$ 0.03 | GOPAL              | 80          | DPWA $\bar{K}N \rightarrow \bar{K}N$ |                   |

| $(\Gamma_i/\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Sigma(2070) \rightarrow \Sigma\pi$ | <u>VALUE</u>     | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                     | $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$ |
|--|------------------|--------------------|-------------|------------------------------------|-----------------------------------|
|  | +0.104           | KANE               | 72          | DPWA $K^- p \rightarrow \Sigma\pi$ |                                   |
|  | +0.12 $\pm$ 0.02 | BERTHON            | 70B         | DPWA $K^- p \rightarrow \Sigma\pi$ |                                   |

 $\Sigma(2070)$  REFERENCES

|         |     |                   |                          |                        |
|---------|-----|-------------------|--------------------------|------------------------|
| GOPAL   | 80  | Toronto Conf. 159 | G.P. Gopal               | (RHEL) IJP             |
| KANE    | 74  | LBL-2452          | D.F. Kane                | (LBL)                  |
| KANE    | 72  | PR D5 1583        | D.F.J. Kane              | (LBL)                  |
| BERTHON | 70B | NP B24 417        | A. Berthon <i>et al.</i> | (CDEF, RHEL, SACL) IJP |