

$$\Sigma(2070) 5/2^+$$

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

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**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>2020 to 2100 (<math>\approx</math> 2060) OUR ESTIMATE</b>			
2051 $\pm$ 25	GOPAL	80	DPWA $\bar{K} N \rightarrow \bar{K} N$
2070 $\pm$ 10	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
2057	KANE	72	DPWA $K^- p \rightarrow \Sigma \pi$

**$\Sigma(2070)$  WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>100 to 300 (<math>\approx</math> 200) OUR ESTIMATE</b>			
300 $\pm$ 30	GOPAL	80	DPWA $\bar{K} N \rightarrow \bar{K} N$
140 $\pm$ 20	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
906	KANE	72	DPWA $K^- p \rightarrow \Sigma \pi$

**$\Sigma(2070)$  DECAY MODES**

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

**$\Sigma(2070)$  BRANCHING RATIOS**

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

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$				$\Gamma_1/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
0.08 $\pm$ 0.03	GOPAL	80	DPWA $\bar{K} N \rightarrow \bar{K} N$	
<b><math>(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}</math> in <math>N\bar{K} \rightarrow \Sigma(2070) \rightarrow \Sigma \pi</math></b>				
VALUE	DOCUMENT ID	TECN	COMMENT	$(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$
0.12 $\pm$ 0.02	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.104	KANE	72	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

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